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INDIA RUBBER WORLD
CAOUTCHOUC GUTTA-PERCHA

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A STORY OF GROWTH.

AT the beginning of a new year in the life of THE INDIA RUBBER WORLD it always has seemed to us appropriate to engage somewhat in retrospect. The recounting of accomplished progress in any industry is of interest not only in itself, but as indicating lines of possible future development. The nineteen years which have elapsed since the initial issue of this journal have been fruitful in invention and progress in many ways, and in no other industry, perhaps, more than in rubber and the allied interests. We feel certain that the last word has not been said in the development of rubber interests, and look forward to chronicling every year much more news of importance in this trade.

To eliminate from the rubber trade to-day all that has been developed in it within the past nineteen years would leave some very wide gaps—nearly everything in the way of vehicle tires, the greater part of the insulated wire manufacture, air-brake hose, hose for pneumatic tool work, the rubber-cored golf ball, and an immense number and variety of minor articles of rubber, together with the new processes and apparatus which have been perfected for their production.

The rubber world, so to speak, has been greatly broadened in those nineteen years. The opening up of forest rubber areas in Africa and in the upper Amazon regions has alone proved of vast importance to the industry, while the introduction of rubber culture has still further increased the world's supply of raw material. Scarcely less important has been the great improvement in reclaiming rubber and the increase in the volume of this product. The growth in the extent of the output of the rubber factory has involved not only a large increase in consumption at home, but the sale of important quantities in countries not consumers of rubber before.

We cannot better sum up the situation, perhaps, than by referring to the International Rubber and Allied Trades Exhibition, just closed in London, as an epitome of progress in rubber; to have omitted from its catalogue all that represented development during the past two decades would have left little more than a skeleton. We regard this exhibition as epoch-making, and by comparing future rubber exhibitions with it will best be measured the growth of the trade.

It is of interest to note that seldom has rubber been utilized to an important extent for any purpose without continuing to be so utilized. Hence every new application means a permanent addition to the catalogue of the uses of rubber. To-day the possibility appears to exist of a great coming demand for rubber in aerial navigation—a demand which within the coming nineteen years may prove as important as the present demand for rubber in the tire trade.

We do not doubt that the most important development in the next decade will relate to the production of crude rubber—in new fields and from new plants, as well as in the improved preparation of rubber in the fields now exploited. It is not unlikely that within this period the culture of what now are regarded as minor rubber plants will become extensive in the temperate zones.

The work of chronicling the progress of the rubber trade has been a constant source of interest and pleasure to the Editor, involving as it has the collaboration of so many leaders in this progress, and he can have no higher wish than for a long continuance of this desirable relation.

THE POPULAR NEW VEHICLE.

FROM the inception of the automobile THE INDIA RUBBER WORLD has dealt with the development of the new class of vehicles as affording perhaps the most important single outlet for the products of the rubber manufacture. To-day it may be asserted that the demand for rubber for tires exceeds the most enthusiastic predictions of ten—or even five—years ago, and it seems likely to become much larger before showing any decline. As we have so often pointed out, the commercial use of self-propelling vehicles has become no less important, from the standpoint of the rubber man, than the use of the machines more popularly called "automobiles." The latter, being used largely for pleasure or recreation, in addition to being costly, must necessarily be

confined to a limited share of the population; in times of business depression the possibility exists that the demand for them will decline; and those persons who have taken up automobiling as a "fad" may lose interest in it in time. It may be said, however, that during the first business depression America has known within the history of automobiling, the makers of these machines appeared to be less affected than any other class of manufacturers.

The next important development in the field of self-propelling vehicles requiring rubber tires evidently will be in the widespread use of the small passenger cars introduced for hire, which, as now appears, will become known generally as "taxicabs." The failure of the "motor 'buses," hailed with so much enthusiasm in Europe two or three years ago, to realize all the expectations entertained regarding them need not be quoted to the prejudice of the smaller and more efficient taxicab. The motor 'bus was designed to follow fixed routes; it had to carry a dozen or twenty passengers on every run in order to earn dividends; it was heavy and unwieldy, inconvenienced other forms of traffic and "ate up" tires at a costly rate. The taxicab, on the contrary, can be utilized by a single passenger, or a small party; it will go wherever its fares wish, in or out of the city, without necessarily making schedule time, and it has many other advantages, not the least of which is the applicability to it of pneumatic tires.

The taxicab has all the desirable features of the horse drawn cab, with much greater speed; its use encumbers the streets less and renders the streets cleaner, and when the new vehicles come into wider use they doubtless will afford cheaper transportation than any one ever dreamed of while horses were the sole dependence aside from tram cars. Practically equal to the automobile for many purposes, available, temporarily at least, for every man with a shilling in his pocket, the taxicab promises to become the most popular passenger vehicle ever yet produced, and one that will give a new impetus to the rubber tire industry.

TRYING TO DRIVE OUT AIR.

THE impression evidently prevails in many quarters that an exhaustion of the supply of atmospheric air is imminent. We all remember the scare over the threatened rubber famine. No sooner had the researches of Goodyear and Hancock demonstrated the great number of uses to which the hitherto useless india-rubber could be applied with success, than people began to fear that there would not be enough of the elastic stuff to go around. After a half century, however, and now that planters are getting out rubber more cheaply than it can be gathered in the forests, the old-time scare seems to have dropped out of the stock list of topics in the newspaper offices about which a column could always be written when the presiding genius was in doubt about what to use to fill his space. It is easier in these days for the hack writers to make their readers' flesh creep for fear that rubber may become too plentiful for everybody now producing it to find a market.

After resilient tires came in vogue and rubber prices for awhile soared to such an unprecedented height, inventors busied themselves for awhile in trying to develop tires which should require little or no rubber. That seemed reasonable enough, but motorists still appear to demand rubber of some sort for their tires—and rubber doesn't cost quite so much as at one time. But the inventors must be busy, and they are progressive, trying always to keep ahead of the game, which is commendable whether they succeed in setting the world on fire or not. Automobilism having such a hold upon public interest to-day, the old-time inventors of plows and churns and moth-proof beehives have been supplanted by a class dealing with automobiles and motor accessories, until the patent offices are overflowing with surplus funds from fees. And now the tire class is intent, not so much upon anything relating to rubber as on rendering unnecessary the use of air in "pneumatics!"

The inventor does not always venture into deep water. The type of tire which consists of an air tube with an envelope having become standard, most of our friends to-day who are trying to find substitutes for air stick to this form, though it would seem that they would simplify matters by filling "hose pipe" or cushion tires with their compositions. We could present a list a mile long of patents covering the use of innumerable materials which have been suggested as substitutes for air, and which at least are not so heavy as scrap iron, and not much more expensive, though we doubt whether all of them are more resilient. How to get the various tire fillers in place is a problem with some of the inventors. In one case, we notice, the patentee has been original enough to discard the inner tube, and stuff his composition by hand into an ordinary envelope, after which it is held in place by cementing a strip of canvas over the base of the envelope.

Far be it from us busy journalists to invade the field of invention, but when we read a patent specification like this we are tempted to make remarks: "The composition is introduced into the interior of the air tube, where it forms a lining covering the inner surface." We at least should have more respect for the originality of an inventor who devised a lining for the *outside* surface of an air tube, or any other manufactured product. And this leads up to the thought that perhaps the whole school of investigators we are considering are on the wrong path. Instead of getting their compositions inside a tube, why not *line the outside* with layer upon layer, wrapping one about the other, until the desired volume is attained, after which they might put on an outer cover or an inner cover or no cover at all. But most of all we should consider the air tube superfluous, since the main object is to dispense with the use of air.

But why fear an air famine? Why not learn to use

the same air, time and time again? If there isn't enough common garden air, however, why not import it from the sparsely peopled *pampas* of South America? Why not build windmills to make wind? Why not bottle up the exhaust from the countless political orators now busy in the American presidential campaign, spouting what the authorities in slang call "hot air"? Why not use dephlogisticated air? To close this serious discussion, however, we do not foresee that the effort to displace air in motor tires is liable to succeed to the extent that rubber will not still be required—and that is the main point in the trade which this journal represents.

TRAINING RUBBER ESTATE MANAGERS.

THE rubber planting interest is still too new to have developed very many experts in its various departments. The first essential, of course, after the trees were planted, was to get out rubber. The practicability of this having been established, the next question was how cheaply the rubber could be produced, because upon this depends the whole matter of profits. The successive annual reports of some of the older rubber plantations show a declining scale of costs, with indications that the bottom price has not yet been reached. As a result, during the lowest stage of the market last year, some plantations were realizing almost as much net cash per pound as during the preceding era of high prices.

Not all the plantations now producing, however, have been able to make an equally satisfactory showing to their shareholders. One reason, suggested by an Eastern rubber planter recently while visiting THE INDIA RUBBER WORLD offices, is that the number of expert plantation managers developed thus far is not sufficient to supply the demand. Many managers are yet obliged to work in an experimental way. Their first problem is to produce rubber, at whatever cost, after which they can address themselves to lowering the cost, through improvement of their methods and the further training of their employés.

At one time it was thought that one who had qualified as an expert in rubber plantation management, through his success on one estate, might be relied upon to obtain similar results on any number of estates, by acting in an advisory capacity for them all. This, however, has not always proved true in practice. The trouble is that in the case of one man's energies being spread out over so many plantations, much has to be left to the local working staffs, and unless these have had some training the best laid plans may fail to be carried out intelligently. This is particularly apt to be true if dependence is placed upon native employés. However faithful they may be, and however intelligent they may seem while actually working under directions, failure too often results when they are left to exercise their own judgment.

But all of this furnishes no argument against rubber culture. The men who have won success in their field have done so merely because they happened to be on the ground when rubber culture was introduced into their region, and they addressed themselves successfully to its problems. There must be other men equally fitted by nature for such work, and the incentives to study rubber planting questions are greater than when the pioneers first took up the work. The first lesson having been learned, that special training is necessary for managing a rubber plantation well, as is true in every other business, there need be no fear of an ultimate lack of good managers.

This subject was referred to at the summer meeting of the Rubber Planters' Association of Mexico, by Dr. Pehr Olsson-Seffer, who suggested that rubber planting is not so simple a matter as some people might think, and that a plantation involving an expenditure of, say, a million dollars, calls for managerial ability of a high order. The difficulties to be met are magnified if the management of a tropical enterprise is undertaken by one not before familiar with tropical conditions. In Mexico, the speaker said, there had been a weeding out of managers, and the outlook to-day is good with regard to the character and capacity of the men in charge of the rubber plantations there.

A NEW REGIME IN THE CONGO.

THE Congo Free State has become a colony of Belgium, as Lagos is of England, Kamerun of Germany, Algeria of France, and Angola of Portugal. Henceforth not Leopold but the Belgian parliament is entitled to praise or must bear the blame for whatever of good or ill develops in the administration and condition of the Congo. Now that the status of that region is on the same plane as that of other African regions under European control, the Powers which have criticized the management of the Free State are under challenge to show whether or not they are doing better with their colonial administration under like conditions. Those who have been pleased to attack Leopold, the individual, as an administrator, no longer have an excuse to single out a single African dependency for their criticism, but must deal with colonial conditions in Africa as a whole; the European or American who deplores the fate of the African native under white man's rule must now take into account the condition of the native under the rule of any and all the Powers. On the whole, the new régime promises to lead to a clearer understanding of African affairs in general, through the removal of the condition, unusual in modern times, of one individual apparently with unlimited power over so great a country as the Congo Free State under the King of the Belgians.

THE INDIA RUBBER WORLD is no apologist for Leopold. With Congo politics, so to speak, it has had no concern; as to the motives of the critics of the

late sovereign of the Congo domain it has not even inquired into them. Our interest in the region began with the declaration of Stanley, then an American, after traversing the "Dark Continent," that it would become "the rubber reservoir of the universe." As a matter of trade news THE INDIA RUBBER WORLD (December 15, 1892—pages 63-65) printed a lengthy report, from a disinterested and authoritative source, on the rubber resources of the Congo, with an original map—the first generally circulated in America—giving the first official decree relating to rubber in that region. Since the date referred to we have attempted to keep the trade adequately informed in regard to Congo rubber conditions.

Now that the Congo State has been annexed to Belgium, in accordance with the frequently expressed ideas of Leopold II, we give space on another page to a statement written at our request of the meaning of the act, from an official source—from the pen of the representative of the Free State in America, a widely-known writer on legal and economic topics who has represented the United States at several international congresses. The views expressed therein may not meet with universal acceptance, but we cannot help that; it is not our statement. It concludes, however, for the present at least, our record of Congo politics.

The Congo rubber situation will continue to be of importance. It is interesting to be assured that the status of foreign *concessionaire* companies on the Congo—two large ones are American—are not to be disturbed. Whether the Congo rubber output will be maintained remains to be seen. Under ordinary circumstances we should expect the decline which has been in progress for some years to continue. If the change in régime should lessen the extent of enforced labor it will decline more rapidly. We have never felt the confidence in the outcome of rubber culture in the Congo as in planting in some other regions, though ultimately the result may justify all the hopes that have been entertained. As to planted rubber, however, there is nothing to do just now but wait; as for the much discussed "red rubber," will it continue to be produced under the rule of Belgium, as successor to the king-sovereign?

"PARA" OR "HEVEA"?

AS is natural where a new article of commerce is being introduced, the desirability is expressed in Ceylon of having a distinctive name for the plantation rubber produced there, instead of referring to it as "Pará" rubber. For many years all Pará rubber came from a limited district in Brazil, taking its name from the port whence it was shipped. When rubber began to arrive from other countries—Central America, Assam, and so on—the geographical system of designation was natural and effective, since in each case it referred to a distinctive quality of material. Later other classes of rubber found their way down the Amazon, past the custom house at Pará, but the name "Pará" was reserved for the quality first derived from that port, and other names—such as "caucho"—were given to the new rubbers. Now other South American countries have joined Brazil in supplying rubber of the original "Pará" type, giving rise to terms as "Bolivian Pará," while rubbers from Mollendo, on the Pacific, or from the Orinoco, in Venezuela, reach the manufacturer as "Pará." In other words, "Pará" has ceased to be a mere geographical designation, but indicates a certain general type of rubber, the product of the tree known to botanists as *Hevea*.

The introduction of this tree into the old world was followed by the description of its product there as "Pará" rubber, to distinguish it from the product of the many other species, wild and cultivated, with which it competed. Now has arisen some confusion owing to the fact that from the commercial and also from the industrial standpoint "Pará" rubber grown in Ceylon differs from the forest product so long known by that name, and great pains is necessary satisfactorily to describe the various lots. *The Times of Ceylon* invites the coöperation of THE INDIA RUBBER WORLD in seeking the adoption of the term "Hevea" for plantation rubber produced from the species which that name describes.

The objection might be urged, from the scientific standpoint—and all the rubber men seem in a fair way to become scientists—that "Hevea" is not sufficiently distinctive; for is not the forest rubber of a half-dozen countries equally the product of the *Hevea* species? It may seem inconvenient now to describe a certain rubber as "Ceylon Pará." Adopt the new suggestion, however, and in time we probably shall be getting "Hevea" rubber from the Amazon, when it would be necessary to write "Ceylon Hevea" to let buyers know that it was not "Pará Hevea," or "Bolivian Hevea"—*i. e.*, cultivated *Hevea* rubber from South America. Where does the simplicity come in?

Account must be taken of the inertia to be overcome in introducing changes in trade nomenclature. For a long time to come the name "Pará" is likely to persist in use in describing the rubber which now holds first rank in the trade, and offerers of rubber having any sort of relation to that type doubtless will find it more convenient to add the term "Pará" to their descriptions than to attempt to introduce new names the pertinence of which is not so clear to render them at once popular.

We should be delighted and proud to assist in the laudable work of reducing to a better system the classification and naming of rubber grades, but to get down to a single word the description of a particular lot of rubber is, at present at least, impossible. A single shipment of "fine Pará" rubber from the Amazon to-day must be described, for the purposes of seller and buyer, sometimes under a score to a hundred headings. The time is not yet ripe for one word—"Hevea," for example—to designate the produce of planted *Hevea Brasiliensis*. And if it were, how about the produce of *H. lutea, H. discolor, H. Guayanens*, and twenty other species of *Hevea?*

The commercial success of rubber culture in the Far East thus far has been greatly enhanced, we take it, by the bringing together under the control of a few highly systematized large companies, well managed on a solid financial basis, of very many small plantations. How does *The Times of Ceylon* know that, within a comparatively few years, the whole rubber plantation interest in Ceylon, for example, may not be brought under some such central management as shall control the production of rubber goods on a more scientific basis, so that the natural designation need not be "Pará," or "Hevea," or "Ceylon," but two or three trademark names which indicate to every intelligent manufacturer in the world just what quality of rubber is covered by each? This would not involve necessarily the merger of all the present companies into one, but a convenient "community of interest," on a basis capable of application likewise to Malaya, South India and the Dutch East Indies.

IT SEEMS IN ORDER AGAIN to refer to the expansion of the submarine cable interests of Germany, especially on account of

the German policy of fostering the domestic cable industry instead of depending upon foreigners to build the cables wanted, as is the case with the United States. Having successfully established a cable service to New York, the Germans have now planned another transatlantic route, this time to Brazil, in connection with which a branch will extend to German West Africa. In view of all the talk for nearly a century about forming closer relations among the American republics it might have been expected that the United States would precede Germany in the matter of running a cable to Brazil.

THE EARLIER ATTEMPTS AT COTTON GROWING in many parts of the world where competition with the United States was attempted happened before the commercial utilization of cotton seed was known. To-day British and French and Belgian and Portugese and German colonies in Africa—not to mention other regions—are producing not only cotton fiber of good quality, but considerable quantities of cotton seed, which also can be exported to advantage. It is true that the seed is now utilized to great advantage in the United States, instead of being regarded as a nuisance, as formerly. None the less, the fact that the African cotton planter now has two commercial products from the same planting instead of one is not to be overlooked in prospecting the world's cotton production of five to ten years hence.

THE NEW YORK STATE FORESTRY DEPARTMENT is planting millions of timber trees on waste lands, with the idea that some of them will stand for sixty years or more before being cut down to yield a commercial product. By comparison, waiting ten years or less for rubber trees to become productive seems almost like getting immediate results.

BRITISH RUBBER SUBSTITUTES.

MERRILY the inventors of rubber substitutes and the like still go around, until the patent office inventors must be dazed with the problem of determining how any of the substitutes brought to them to-day differ from those patented in former years. The few references on this page are not a record of a year, but of announcements made within three weeks, in a single country. From the use suggested for several of the inventions—for tire fillers—it would be appropriate to term the substances "air substitutes" rather than rubber substitutes.

Lugo (British patent No. 10,008—1907) forms a rubber substitute by heating a mixture of oxidized oil and rubber to a temperature at which the rubber dissolves. Potassium permanganate is added, and the whole heated to 360-400° F. Finely divided waste rubber is added, the mass being stirred and the temperature maintained. To obtain a harder product sulphur may be added.

S. de Pont (British patent No. 9,379—1907) produces a non-inflammable electric insulating composition, suitable also for buttons, bottle stoppers and piano keys, from asbestos or vegetable fiber 30 parts, plaster of Paris 5, clay 8, copal 15, cowrie or lac 5, bitumen or the like 15, aniline 2, lampblack 15, mica 4, and wax 3 parts. The ingredients, partly dried, are mixed and dried under pressure between steam-heated rollers.

Inrig (British patent No. 9,094—1907) prepares a rubber substitute from the gelable portions of animals. Fifty parts of such material are treated with 50 parts of water and from 20 to 60 parts of oil at a temperature of 200° F. Subsequently sodium stannate and potassium bichromate are added. On heating to 212° F. a mass is obtained which may be set in a mold and used for filling motor tires. To obtain a harder mass less oil is used, and the composition is mixed with 5 to 10 per cent. of sulphur and heated to 260° F. This latter form is designed for insulation purposes.

Frankenburg, of Salford (British patent No. 8,780—1907), fills tires with a composition prepared by dissolving dead Borneo, potato, or other rubber, balata, or gutta-percha in heated or boiled oxidizable vegetable oil, with sulphur added for vulcanizing. The composition is pumped into the tire or inner tube.

Scott (British patent 9,727—1907) makes a composition for sealing tire punctures of milk 50 parts, isinglass 17, fish glue or gelatin 200, carnauba 10, formaldehyde 3, and gum ammoniacum 1 part. Introduced within the air tube it forms a lining for the inner surface.

Fagioli (British patent No. 10,017—1907) produces a tire, the cover of which, instead of containing an inflated tube is filled with a composition consisting preferably of these proportions: 1 pint giant cement, 1½ pints of rubber solution, and 2½ gallons granulated cork. When the tire has been filled a canvass strip may be cemented over the base, and the tire mounted on a two-part rim with a detachable flange.

A CAMPAIGN OF EDUCATION.

NOT so long ago rubber was simply rubber. Even after importers and manufacturers had begun to recognize hundreds of different grades of the raw material, it was presumed that all rubber looked alike to the man in the street. But now the public is expected to be more discriminating as to rubber, and the public intelligence is appealed to in up-to-date advertising, in respect of rubber as well as of most other commodities. Take for example the statement featured prominently in newspaper advertisements of a certain fountain pen, that the manufacturers use "Beni Bolivian Pará Rubber" from the Madeira river, "the toughest, most elastic, and costliest rubber gathered," and to render the advertisement more informing pictures are given of rubber gathering as well as of working rubber in the factory. The idea is that this fountain pen is not the same as others in the market, and that the difference begins with the quality of rubber used.

A department store advertising in the same newspaper devotes some space to clothes wringers, incidentally mentioning the use of "Pará rubber" in the rollers and referring to the "vulcanization," which would indicate that such terms are now passing into general speech.

All the above relates to America, the home of the vulcanized rubber industry, but all the world is becoming Americanized nowadays, and newspaper readers elsewhere are becoming more familiar with rubber and its uses. Even China is coming to have newspapers in the sense in which newspapers are known in the Western world, and it occurs to a writer in the London *Daily Mail*, in a résumé of Chinese journalism, to mention "rubber waterproofs" as occupying a good deal of space in their advertising columns. No doubt native newspaper readers in China soon will be confronted, in the advertisements spread before them, with the claims of rival tradesmen—each to employ better rubber than the others, with arguments to support their claims. Everywhere the campaign of education in rubber is progressing, and at a rate that ought to be encouraging to all who produce rubber or help in any way to render it commercially valuable.

AT a special meeting of the De Mello Brazilian Rubber Co., Limited, in London, the directors were authorized to borrow £150,000 and to release Sebastiao Francisco de Mello from a claim which the company held against him. Within a year, certain debts of the company being pressing, the directors had become responsible for a large sum, secured by the issue to them of provisional scrip, and in order to protect holders of the scrip a receiver had been appointed. The company were then able to arrange for the shipment to Manàos of 160 tons of rubber but owing to the fall in prices the results were very disappointing. Large sums were due the company in the rubber districts, and it was believed that, with the issue of £150,000 in debentures the company would be able to finance their affairs successfully.

THE EDITOR'S BOOK TABLE.

ESTUDO SOBRE OS LATEX BORRACHIFEROS E OS METHODOS de Fabrico da Borracha. (Seguido de uma noticia sobre uma nova especie borrachifera descoberta pelo auctor no sertão de Benguella). Por Carlos Eugenio de Mello Geraldes. Lisbon: Lucas. 1906. [Paper. 8vo. Pp. 177.]

THE author has contributed through the pages of *Revista Agronomica* (Lisbon) and other journals some important additions to our knowledge of African rubber species, particularly in the district of Benguella, which already has furnished many thousands of tons of rubber to the world's markets. This brochure is a general résumé of the history of the use of rubber, with notes on the qualities of the leading commercial brands, but its notable feature is the first scientific reference to the plant in the Bihé district, in Angola (Portuguese Africa), known locally as "Ekanda." Unfortunately, Portuguese is not so widely read as some other languages in which progress in rubber is recorded. This publication, as its title shows, appeared in 1906. The Kew *Bulletin* two years later (No. 5—1908) says: "But it was only in the summer of the following year that the discovery became more generally known through a short abstract from Professor Geraldes's paper published in THE INDIA RUBBER WORLD [July 1, 1907—page 200]." Following this latter notice the Ekanda tuber was studied at Kew, where it has been identified by Messrs. Brown and Stapf as *Raphionacme utilis*. The plant referred to has attracted the serious attention of the important Companhia de Moçambique, engaged to so large an extent in development in Portuguese East Africa, and who have recently secured the services of Mr. W. H. Johnson, lately director of agriculture for the Gold Coast Colony, in West Africa, and author of a work of considerable value entitled "Pará Rubber." While the Ekanda plant is a native of Angola, in West Africa, the Mozambique company are hopeful of acclimatizing it in their Beira territory. The 1907 report of the Mozambique company says: "It would appear that the 'Ekanda' propagates rapidly, and does not require special care; it is therefore probable that it will easily develop in our territory; we could therefore thus rely upon an important source of revenue, for the bulbs of Ekanda are undoubtedly rich in india-rubber, which is of excellent quality and the sacrifices [cost] which its cultivation demands are, so to speak, insignificant." It is interesting to note that Professor Geraldes has in preparation a supplementary study: "Da exploração racional das principaes especies borrachiferas."

THE FUTURE OF CACAO PLANTING. A PAPER READ BEFORE the Royal Horticultural Society, London. By Harold Hamel Smith, Editor of *Tropical Life*. With an Introduction by Sir Daniel Morris, K. C. M. G. London: John Bale, Sons & Danielsson, Limited. 1908. [Paper. 12mo. Pp. XIII + 95. Price 1 shilling.]

IT doubtless will become recognized in the near future that a community of interest must exist between the cultivators of india-rubber and other tropical products. Mr. Smith, rightly, we think, is an advocate for planting more than one crop at a time, in order to distribute the risks and minimize the effects of adverse markets. The commercial value of cacao (the chocolate tree), already great, is constantly increasing, and it happens to be adapted to the same natural conditions as *Hevea* and some other species of rubber. In fact, some of the more important Ceylon plantations of rubber had their origin as a side issue with planters of cacao. Later there was considerable interplanting of rubber and cacao, but this we understand Mr. Smith to discourage; his theory of mixed crops extends only to encouraging planters to devote attention to both crops, but not to the extent of interplanting, for reasons which he clearly sets forth. Our author is an authority on cacao, and his little work can be recommended to rubber planters as meriting their interest, whether or not they have been planters of this crop. The fact of Mr. Smith's activity in connection with the London Rubber Exhibition will give rubber planters an additional reason for giving his valuable little book a perusal.

IN CURRENT PERIODICALS.

THE Atlantic Cable of 1858. By William Maver, Jr.=*Electrical World*, New York. LII-8 (Aug. 22, '08). Pp. 385-387.

Veränderung des Kautschuks beim Lagern und Seine Konservierung. By W. Schellmann, PH.D.=*Der Pflanzer*, Amani. IV-1 (Jan. 4, '08). Pp. 1-8

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"THE INDIA RUBBER WORLD'S" EDITOR IN JAPAN.

[Advantage is taken by the staff, in the absence of Mr. Pearson, to give his friends in the trade a glance at an excellent photograph which comes from Japan, where evidently at one time he posed before a camera with Mr. Kenzo Okada, of an important rubber manufacturing company at Tokio.]

Aeronautics and the Rubber Industry.

THE past month has been prolific of news bearing upon aërial navigation—a subject which now interests the general newspaper reader everywhere, as well as engineers, military authorities and other scientific classes. To the casual reader of the daily reports of the current exploits of Wright, Baldwin, Zeppelin, *et al.*, it may be surprising to be reminded that just 17 years ago Mr. Octave Chanute, then president of the American Society of Civil Engineers, and regarded as perhaps the best living authority on "Progress in Aërial Navigation," in which he admitted that the success attained had been small. He said:

> Within the last decade a balloon has been driven against a moderate wind, and a man is said to have flown a hundred yards near Paris. So that it may be that, as Professor Langley (then secretary of the Smithsonian Institution) says, the problem of aërial navigation is about to pass into the hands of the engineers.

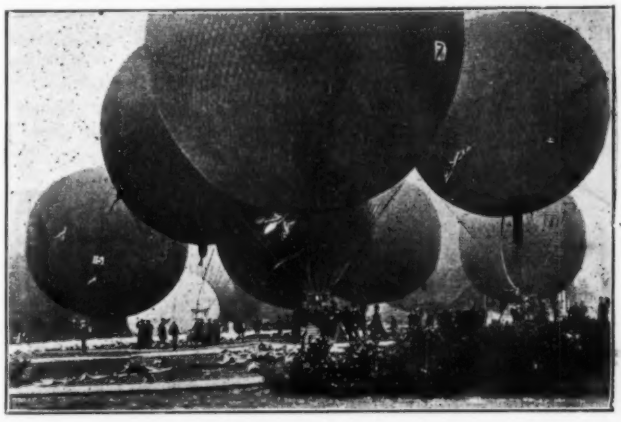
To sum up Mr. Chanute's paper, published so recently as 1891, he could record little more advance in aërial navigation than "a great change in the attitude of popular opinion toward the whole subject. It is no longer regarded as wholly impracticable and visionary." In other words, a man might at least talk about "flying" without being considered a "crank."

Mr. Chanute has lived to see dirigible balloons and various forms of aëroplanes apparently capable of practical use. Look back to Mr. Chanute's cautious statement—"a man is said to have flown a hundred miles near Paris"—and compare it with Count Zeppelin's flight of 300 miles within 20 hours, in a dirigible airship, 435 feet in length, with 220 HP. motors. Not only is the development in aërial navigation of vast interest in military circles, and from other practical standpoints, but it is being taken up with enthusiasm as affording a new field in sports. It is understood that at the coming eleventh Exposition Internationale de l'Automobile, du Cycle, et des Sports, at the Grand Palâis, Paris, an extensive section will be devoted to balloons and flying machines.

But the object of this article is not so much to record the details of the progress that has been made in aërial navigation, as to call attention to the great importance to the india-rubber trade of ultimate success in this field. As the automobile would be impracticable without rubber tires, neither the balloon nor the aëroplane is capable of the best development without rubber. Particularly is this true of the balloon.

It is true that the coating of rubber in balloon fabric can be replaced with a coating of varnish, and in France many sailing balloons are constructed of a varnished fabric, but the varnish is by no means as impermeable as rubber. Moreover, the varnished fabric has other disadvantages, in addition to its lack of capacity to retain gas. It is, for instance, a better conductor of heat, and for this reason the gas, in a varnished balloon, is heated more quickly by the sun's rays and cools more rapidly in the shadow of a cloud, causing a greater loss of gas than occurs in the case of a balloon made of rubberized fabric. Heat also causes the varnish to become sticky, making packing more risky, and the balloon is likely to be damaged by sticking together when unpacked. A low temperature hardens the varnish and the fabric is brittle when folded, all of which factors make the varnished balloon less durable than one made of rubberized fabric, the latter being used for all the best and largest balloons.

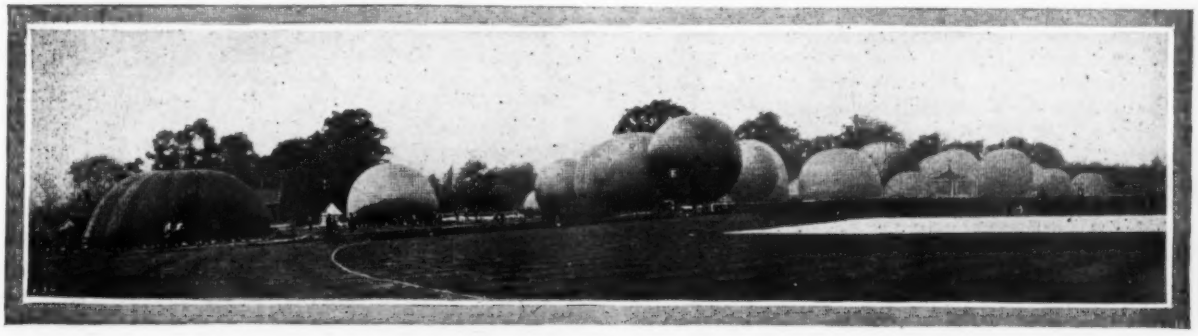
For motor balloons, or dirigibles, owing to the much higher gas pressure required, it is next to impossible to use varnished fabric. The loss of gas within a prescribed period would be altogether too great. The high degree of perfection to which



INTERNATIONAL BALLOON RACE AT HURLINGHAM.
[From *The Automotor Journal.*]

the rubberized balloon fabric has been brought, in Germany, is proved by the fact that the manufacturers guarantee that it will not lose more than 10 quarts of hydrogen gas per square yard, in 24 hours, in spite of the pressure under which it stands being considerably higher than the surrounding atmosphere.

In the development of balloon fabric Germany has held the lead hitherto, as France has in the construction of automobiles. But as other countries are becoming independent of France in respect of automobile construction, so Germany must look for competition in the supplying of balloon fabric. The United States government has encouraged the production of balloon fabric by domestic manufacturers, and the gas bag used in the first American war



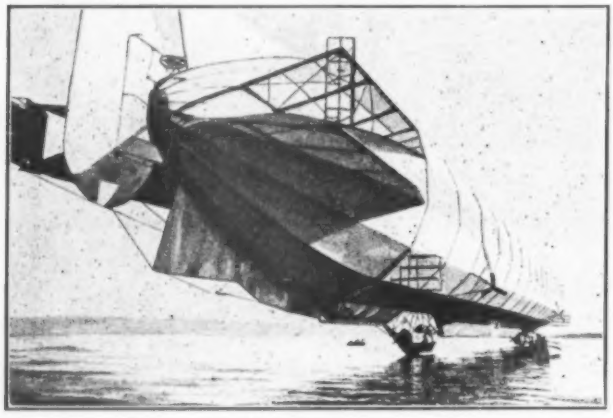
INTERNATIONAL BALLOON CONTEST AT THE AERO CLUB'S GROUNDS, HURLINGHAM, ENGLAND.

[Panoramic view of the balloon paddock, showing the whole of the 31 balloons in position, in process of inflation from a 14-inch gas main. The large white "mat" to the right is the starting line.—From *The Automotor Journal.*]

balloon—the dirigible offered by Captain Thomas S. Baldwin, with a capacity of 18,000 cubic feet—was made by an important rubber concern in this country.

Balloon fabric has also been used of late in France for the construction of the planes of aëroplanes, whereas formerly varnished silk and even varnished or oiled paper was used for this purpose. These substances are likely to be entirely superseded in flying machine construction by balloon fabric, which is much more durable. For motor balloons, as well as for aëroplanes, thin sheet-metal has been tried for the envelope. In building the great motor balloon of Count Zeppelin, a great deal of aluminum was used, but the gas bag itself was of rubberized balloon fabric. Jatho, of Hanover, in his aëroplane, experimented with planes covered with thin sheet magnalium, and the French constructors otained the material for their flying machines from Hanover.

Not only the introduction of the motor balloon, especially the military balloon, has led to an increase in the demand for balloon fabric, but the sport of ballooning, with sailing balloons, has also witnessed remarkable growth. Thus the number of members in aëronaut clubs has increased about 30 per cent. within the past year and new clubs have been formed in many cities. The members of the German clubs own 30 sailing balloons and the clubs are already beginning to use motor balloons for sporting purposes. At the recent international balloon contest at Hurlingham, England, starting from the grounds of the Hurlingham Aëro Club, there were 31 entrants.



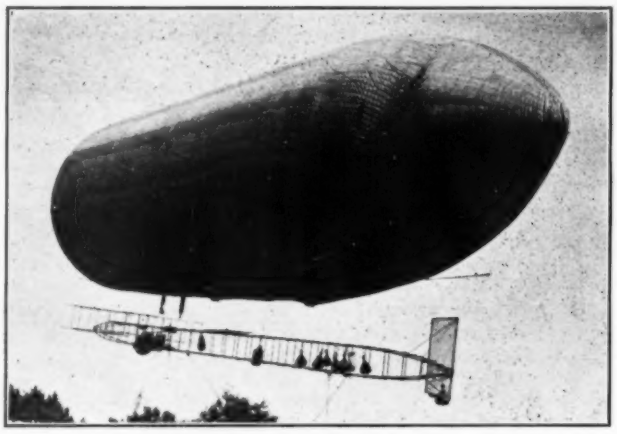
COUNT ZEPPELIN'S AIR SHIP "NUMBER FOUR."

[During a thunderstorm on August 5 the gas took fire and the machine was destroyed. The German people have subscribed $400,000 to build another.]

—Courtesy of *The American Review of Reviews.*

In an article in the *Gummi-Zeitung* it is pointed out that while in the automobile the value of the product of the rubber industry (the tires) is about one-tenth of the total value of the automobile, in an airship, the rubber product, represented by the gas bag, constitutes the greater portion of the value. The value of the material in aëroplanes is much less, although in covering the planes of such aëroplanes as those built by Farman and Delagrange, over 100 square yards of balloon fabric is required. In comparison, for an ordinary motor balloon, about 2,000 square yards of balloon fabric is required, making the value of the gas bag of a motor balloon about $5,000, to which must be added the cost of making up, the filling tubes, etc. The steering and stabilizing planes of motor balloons are also mainly constructed of balloon fabric, so that the rubber material in a motor balloon of medium size represents a value of about $6,250.

The rubberized fabrics for ordinary sailing balloons are cheaper, but cost nevertheless from $1.50 to $2 per square yard, so that the balloon fabric alone is worth from $750 to $1,250. Varnished fabric, used extensively for sailing, never for motor balloons,



THE FIRST AMERICAN WAR BALLOON.

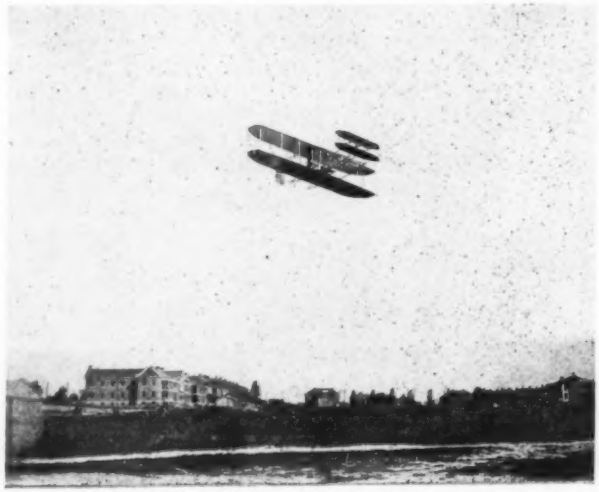
[Captain Baldwin's Dirigible, tested in August by the United States Government at Fort Myer. Balloon fabric made by an American rubber company.]

—Courtesy of *The American Review of Reviews.*

costs about 60 cents per square yard in Germany. The low durability and strength of the varnished balloon fabric is due to the hardening or resinification of the varnish, causing the substance itself to become brittle and readily breakable.

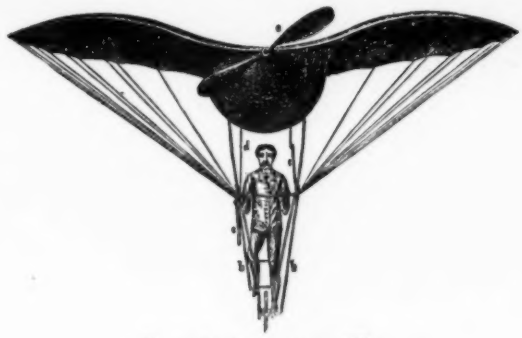
The method of making both kinds of fabric may briefly be described as follows, according to the *Gummi-Zeitung*: For both kinds of balloon fabric cotton fabric, mostly percale, is almost exclusively employed. For varnished balloon fabric a single thickness of cloth is used, to which boiled linseed oil varnish is applied, the work formerly done by hand being now effected by mechanical means. In a thin layer this varnish has the property of taking up oxygen from the air and drying in a thin coating. The oxidization process is dependent on the moisture in and temperature of the air. As soon as it is completed, which is indicated by the darkened color and the hardness, the fabric loses much of its flexibility and readily becomes brittle. In special cases, where the greatest possible lightness is necessary, in place of cotton cloth a silk fabric is employed. The varnishing process tends to render this substance more than ordinarily brittle, and for this reason, and on account of its much higher price, varnished silk is seldom used for balloons.

Rubberized balloon fabric is made in the familiar manner, the



WRIGHT'S AEROPLANE AT FORT MYER.

—By courtesy of *The Automobile.*



GOUPIL'S AEROPLANE, 1883.

cotton fabric being treated with rubber in the coating machine. Two layers of fabric so coated are superimposed on each other in such manner that the threads (warp and woof) of the two thicknesses cross each other diagonally. This ensures to the finished cloth almost uniform tensile strain, or tear resisting strength, in every direction. The fabric is then vulcanized hot and finally colored yellow on one side. The yellow color is for the purpose of neutralizing the more actively injurious blue and ultra violet rays of light. No special color is required in the varnished fabric, the varnish itself furnishing the color. The yellow surface is made the outer side of the complete balloon. It may be added that only after prolonged experiment was a coloring matter obtained that was not injurious to the fabric.

Following, briefly stated, are the advantages and disadvantages claimed for both kinds of balloon fabric:

VARNISHED BALLOON FABRIC.

Advantages: Lower prices; smaller weight.

Disadvantages: Low durability; greater difficulty and expense of maintenance; greater susceptibility to exterior heat; packing, after landing, is much more difficult and troublesome.

RUBBERIZED BALLOON FABRIC.

Advantages: Greater durability; greater strength of the fabric; less expense of storage and maintenance; convenient packing after landing.

Disadvantages: Greater initial cost (compensated for by increased serviceability); greater weight (more than made up for by increased strength).

It is to be expected that the advantages of the rubberized balloon fabric will lead ultimately to its use altogether in place of varnished balloon fabric. For motor balloons and captive balloons, it is already used exclusively, for in both these kinds of balloon there is a much greater strain on the fabric owing to the increased pressure of gas. Rubberized fabric has doubled the tear-resisting strength of the varnished article, *i. e.*, more than 2,800 pounds per square yard, as compared with 1,500 pounds for the varnished fabric. Moreover, the rubber fabric deteriorates but slowly, as regards its tear-resisting strength, whereas the varnished fabric deteriorates rapidly. With varnished fabric, therefore, a bursting of the balloon by pressure of the gas is not impossible.

The French balloon interests were certainly not pleased by the prescription, by the French war department, of rubberized balloon fabric, obtained from Germany, for the construction of its military balloons. As a matter of fact, all French motor balloons are constructed of German balloon fabric, as are also the balloons of other nations, Germany, of course, included. In the success of the great German motor balloon, constructed by Count Zeppelin, the German rubber industry has scored another triumph, but it is to be expected that when American rubber manufacturers bestow attention on this article, they will be able to compete in every way with the best balloon cloth made elsewhere.

A FLYING MACHINE NINETEEN YEARS AGO.

[Ader, near Paris, in 1891, "flew" 100 yards or more in this, sitting in a small car forming the center.]

An English firm has constructed gas bags for balloons from gold beaters' skin, which in the case of large balloons is laid on to the extent of six layers, the skins being so joined together that no seams are visible. The advantages claimed are lightness and toughness. A London newspaper report that Count Zeppelin's new great balloon would be made of gold beaters' skin is authoritatively denied.

INDIA-RUBBER MISCELLANY.

THE INDUSTRY IN AUSTRALIA.

THE business of Barnet Glass & Sons (Melbourne) has been formed into a company under the title Barnet Glass Rubber Co., Limited, with a capital of £45,000 [=$218,992.50], of which one-half is in 8 per cent. cumulative preference shares and the remainder in ordinary shares. The Messrs. Glass have been interested in the rubber trade for nearly 30 years, beginning with the manufacture of mackintoshes from imported materials. In 1899 they put in a plant for the proofing of cloth and the manufacture of a limited list of rubber goods, to which additions have constantly been made.

REDDAWAY'S FRANCO-BRITISH EXHIBIT.

AT the Franco-British Exhibition, in London, Messrs. F. Reddaway & Co., Limited (Pendleton, Manchester), erected a handsome pavilion near Machinery Hall, for the display of their canvas belting, rubber belting, printers' blankets, canvas hose, rubber hose, solid and pneumatic tires, and many other products. A set of pneumatic tires shown was reported to have run for nearly 7,000 miles on all kinds of roads. A special feature was a display of conveying apparatus, employing different brands of the company's belting. In connection with the exhibition Mr. Reddaway gave a dinner to representatives of the technical press of Great Britain and France, several members of his firm's staff also being present.

NEW YORK ELECTRICAL SHOW.

AT the second annual New York Electrical Show, to be open at Madison Square Garden from October 3 to October 14, inclusive, in the section commemorative of the Atlantic cable of 1858 [see THE INDIA RUBBER WORLD, September 1, 1908—page 398] the Commercial Cable Co., through President Mackay and Vice President Ward, will make a loan exhibit of models, relics, appliances, maps, etc., covering the whole period of submarine cable development. The first annual show last year was so successful as to encourage the management to look for even a larger and more varied and better attended show this year, in view of the constant growth of the number of appliances of electricity, and the interest of the public in their use.

A PIONEER GUTTA-PERCHA COMPANY.

THE first company to utilize gutta-percha commercially in the United States are still in business, though the name has undergone some changes. Reference is made to the Bishop Gutta-Percha Co. (New York), who as early as 1848 laid a conduit of gutta-percha under the East river, at New York, since which time they have manufactured gutta-percha pipe for many purposes in any length desired and up to 4-inch bore. They manufacture a long list of other gutta-percha articles, including acid vessels, valves, belting, and tissue, their production of the latter having become very extensive of late.

HOPEWELL BROTHERS' ADDRESS.

IN the description in the last INDIA RUBBER WORLD of a new Hopewell tire case, the address of the makers was inadvertently omitted. They are the firm Hopewell Brothers, manufacturers of automobile fabric supplies, Cambridge, Massachusetts.

Growth of the Insulated Wire Industry.

By Ira W. Henry.

THE importance of rubber as an insulator for electric conductors must be considered an ever growing factor in the supply of and demand for this material. The constant increase in the use of electricity, not only for lighting, heating, and means of communication, but also for city transportation on street railways, and latterly on trunk lines, calls for enormous quantities of copper conductors insulated in a manner that must make them not only waterproof, but also flexible. Although many substitutes, such as cotton, jute, and paper, on account of their cheapness, are being applied as insulators, in every case where specially good service is required the engineer insists on rubber as a dielectric.

The first authentic record we find in America of the use of rubber as a dielectric is mentioned in the diary of Samuel F. Morse, inventor of the telegraph, describing a cable he made in 1842 insulated with cotton surrounded by rubber. The telegraph being the first commercial use to which electricity was applied, naturally called for insulated wire, and continual experiments were made by the Magnetic Telegraph Co., looking for a satisfactory insulation for submarine wires for river crossings, until finally a cable was laid across the Hudson from New York to Fort Lee in 1843, manufactured by Day.

This cable was followed in 1845 by another rubber cable made by Charles Goodyear for Ezra Cornell. From this small beginning the business of insulating wires naturally increased with the growth of electricity, for the various purposes, and the names of Day, Brixey, Habirshaw, Requa, and Reed are closely identified with the development and building up of the insulated wire industry in America.

The manufacturers of insulated wires and cables are now using enormous quantities of the best Pará rubber and the constant increase in the demand for their products has led the more far-sighted to closely investigate the supply from its fountain head. One large wire corporation sent two of its experts to South America to arrange for a constant supply direct from the forests. The trip proved highly satisfactory and a large quantity of rubber was purchased on the ground at a price that paid the expense of the trip, though financial complications arose to prevent a continuation of the business.

The importance of the quality of the gum used in insulation is hardly appreciated by manufacturers of mechanical goods. The rubber must not only be uniformly elastic, but of such a quality that it will constantly stand the strain of the electric current.

The importance of quality can better be appreciated when it is recalled that our battleships are literally managed, the guns pointed, loaded and fired by electricity, all controlled from a central point over rubber insulated wires. The United States navy specifications are very rigid and state that the compound shall contain from 39 to 44 per cent. by weight of fine Pará rubber. Any deviation from these specifications, which they detect by chemical analysis, means a rejection of the entire length of conductor.

The United States signal corps, which controls and operates all the telegraph and telephone lines owned by the government, has at the present time over 2,524 miles of rubber insulated deep sea cables in the Alaska territory. There is a similar system connecting the islands of the Philippine group operating over 1,572 miles of rubber cables in various circuits. The army, using as it does such a large amount of cable, and having constantly in mind the trying conditions under which it must be laid, has carefully mapped out a set of specifications calling for a compound containing 40 per cent. of pure Pará rubber, by chemical analysis, mixed with dry mineral water only.

The specifications laid down by the government have naturally been made use of by electrical engineers for commercial work, as with the ever increasing voltage used power transmission the quality of the conductors must be improved to stand the break-down test. Rubber cables are to-day carrying successfully 20,000 volts pressure on underground lines and one plant now being constructed will use twelve miles of underground conductors under a working pressure of 28,000 volts.

Telephone companies are also very large users of rubber insulation. Every telephone is connected from the point where the service cable enters the building with wire direct to the instrument, made under the rigid specifications of the American Bell Telephone Co. Requirements as rigid as the National Board of Fire Underwriters are insisted upon and all wire is tested by the engineering representative of the telephone company before delivery.

During the past few years some of the manufacturers have attempted to use guayule in combination with higher grade rubbers. Results, however, have been anything but satisfactory as not only mechanical, but electrical conditions have to be considered in an insulator. Electro-chemical effects are constantly taking place in a rubber compound that is not properly mixed, and an excessive amount of free sulphur not only causes the insulation to deteriorate, but in many cases has corroded the wire itself so that ruptures have taken place and the resulting arc from the electrical current has started fires.

African, Madagascar, and other cheaper grades of rubber have been experimented with, but owing to the strict specifications of engineers they will probably never make much headway in this industry, as years of tests have proven that only Pará rubber, when properly compounded, will meet all the conditions to which a wire is subject and carry a current without loss to the desired distributive point.

Rubber wires have been in use in buildings in New York city for over twenty years. A sample of the original conductor with which the Fifth Avenue Hotel was wired in 1888, on being taken out during the destruction of that building this year, was in as good condition as when originally installed. This wire had not been placed in conduits, as is the present practice, but it had been strung on insulators between the floors separated only by fireproofing material from other wires. It had been subjected to extreme heat in fact; met the most trying conditions imaginable, but is still as elastic as on the day it was installed, and the density of the compound shows that the insulation is in no way impaired.

There are two methods employed in the insulating of wire with rubber. In the older or "cut" process, the rubber compound is first calendered in sheets, then cut in narrow strips and placed on the wire lengthwise, the edges of the strips being pressed together by roll cutters, making two longitudinal seams the whole length of the conductors, which are sealed in vulcanizing. The other process is known as the "seamless method" whereby the compounded rubber is forced through a die around the conductor, thus making a uniform or seamless surface. This system, it will readily be seen, does not depend on the heat of vulcanizing to form the compound into a homogeneous mass. Both methods have their advantages, the latter or "seamless" process being specified by the government for their submarine cables, owing to the fact that a conductor laid in the bottom of the sea must stand enormous water pressure, and it is thought that a seamed insulation might open under this strain, thus destroying the insulation of the cable.

One of the greatest aids to the industry was perfected a few years ago when the Wire Manufacturing Engineers' Association

was formed. This organization consists of the practical men of the larger companies who at monthly meetings codify specifications so that the quality of rubber compounds for various voltages would be the same with each manufacturer. All suggestions by electrical engineers were carefully considered and any new method or material discovered is carefully discussed for the general benefit of the rubber wire industry.

To-day, instead of having each manufacturer's catalogue describe a different form of wire for a stated purpose, the various types are standardized, avoiding the necessity of the lighting engineers specifying as to the thickness of insulations, percentage of rubber and the like.

The larger portion of rubber insulations manufactured is used in the wiring of houses and office buildings for electric lighting and interior communication. The electric current penetrating every portion of buildings would naturally be a great source of danger unless it was properly controlled. This has led the National Board of Fire Underwriters to make specifications which are rigidly insisted upon in the installation of electric lighting in all buildings.

The Underwriters' rules were sometime ago further developed by the formation of a testing bureau, under whose direction every foot of wire entering any building in the United States or Canada was tested under the supervision of the representatives of the Board of Fire Underwriters after it had been submerged in water for a stated period. The wire that withstood this rigid test was tagged and only such certified wire was allowed in any building on which a policy was given by the insurance companies.

Various samples are taken from time to time from buildings and from the factories where the wire is made, and presented to chemists to see that the compounds contained a sufficient quantity of rubber to meet the service requirements. In 1888, when electric lighting and the use of the telephone began to assume something like their present proportions, there were but five manufacturers in America making rubber insulations. These companies guarded their secrets very closely and the enormous growth of their business naturally led to profits which interested manufacturers of other rubber goods in this line of business. To-day there are sixteen or more manufacturers in this country turning out rubber insulations, but unfortunately it has been remarked by engineers that while some of the newer concerns have shown great merit in the manufacture of mechanical rubber goods, their compounds were not always suitable to stand the electrical stress and mechanical requirements which must be ever present in an insulated conductor.

This has been somewhat improved by the gradual shifting of some of the experts of the older companies to the new, but a close examination of the product shows room for further improvement, and it is believed that the newer companies will soon discover that the making of electrical goods call for the trained engineering in combination with manufacturing experience.

With the continued increase in the use of electricity in our every day life, the supply of rubber insulated wires must necessarily keep pace. As there is a constant improvement in all forms of electrical apparatus more high grade wire will be used. The amount of Pará for this purpose may at some time in the near future be greater than that used in any other branch of the rubber industry. Although this high grade compound is required for insulating wires none of it is ever recovered as in the case of mechanical goods. Electrical wires when replaced are usually sold for the amount of copper they contain, no attention being paid to the rubber compound, as it is separated from the metal by burning.

A GERMAN CABLE TO BRAZIL.

THE German-South American Telegraph Co., Limited (as the company's name would be expressed in English), has been formed with headquarters at Cologne, with 4,000,000 marks [=$952,840] capital, to lay and work submarine cables from Germany to Brazil and to German West Africa. The capital stated is to be increased from time to time, in proportion to the progress of the enterprise. The new cables will be made in Germany, at the works of the Norddeutsche Seekabelwerke Aktiengesellschaft, at Nordenham a/Weser.

The manufacture of submarine cables in Germany has now assumed important proportions, and seems likely to become even more important, owing to the disposition of Germany to own and control its own cable lines as it does its own ocean steamers. The Deutsch-Atlantische Telegraphen-Gesellschaft now owns two cables between Germany and New York, which are operated profitably. The first of the two cables was made in England, but by the time it was laid the Nordenham works, due to the enterprise of Felten & Guillaume, the insulated wire people, and Franz Clouth, the Cologne rubber manufacturer, were in readiness for work, so that Germany has not since been obliged to rely upon foreigners for any sort of cable construction.

RUBBER SHOES IN CHINA.

[FROM "DAILY CONSULAR AND TRADE REPORTS."]

CONSUL-GENERAL AMOS P. WILDER, reporting from Hongkong, says that the extent of importations of india-rubber boots and shoes into south China has long been considerable, and at certain times American exporters have enjoyed a large part of this business. Mr. Wilder enters upon a discussion of the trade:

The customs returns for 1906 (the latest complete) show imports through the Canton custom-house "from foreign countries and Hongkong" of 404,522 pairs with a value expressed in United States currency of about $242,615 This is surely a trade worth cultivating. Practically all these importations pass through Hongkong. The North British Rubber Co., Limited, is doing a large part of the business at present, their goods being sold through an English firm here which guarantees the sales and receives a commission for their services. Brand or "chop" plays a large part with the Chinese in buying rubber boots and shoes as in all else.

In 1902-3, owing to a shortage of supply for some reason from England and the Continent, other brands got in, including American rubber goods. Since then other attempts, some on a large scale, to break into the old patronage, have been made, but usually the experiment has proved an expensive innovation. At present the rubber shoes are British; to a less extent of Russian, German and Austrian manufacture. One of the most popular brands of rubber shoes (British) is quoted at about $130 per case of 100 pairs assorted in sizes 9 to 10½ inches. This price is in Hongkong currency, the Hongkong dollar now being worth about 44 cents gold. [This would give a gold value of 57.2 cents per pair.] Rubber shoes are kept in stock by the European dealers, Chinese dealers paying cash when they take delivery from the stock.

If American rubber boot and shoe manufacturers are to get into this market, they must meet the prices of their competitors, and establish a "chop" which should be registered as a trademark in Hongkong and China. There is a practice of importing unbranded shoes, which are then stamped by the Chinese in imitation of other "chops." To get new brands of shoes popular among the Chinese, some wise advertising would be necessary.

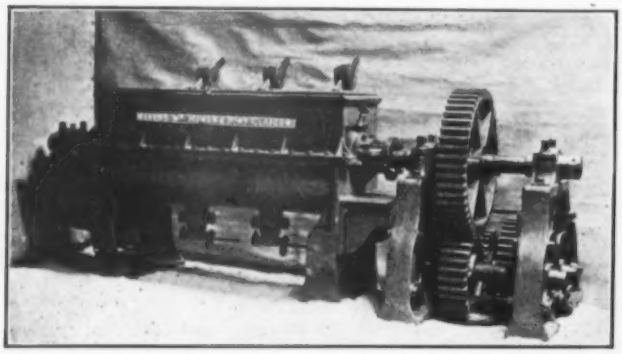
It may be noted that the Chinese are more and more taking to "European" styles of leather boots and shoes. The rubber shoe has long been popular with them in a country where there is so much wet weather, and a favorite size is a half-height shoe.

THE late Russell Sage, the New York banker, whose estate was appraised officially at $66,356,718.90, is reported to have had considerable holdings in shares of the United States Rubber Co. and the American Telegraph and Cable Co.

Machinery for the Balata Industry.

THE constant increase in the production of balata [see THE INDIA RUBBER WORLD, August 1, 1908—page 372], which is nowhere to be obtained except in comparatively inaccessible regions, in the face of greater than the ordinary difficulties, so that, measured by the price of crude rubber, it is never a cheap commodity, indicates that there must be an incessant growth in the demand for goods of a type for which no other gum is so suitable as balata. It appears that the manufacture of balata goods is still confined to a few factories, the use of this gum not yet having been undertaken in rubber factories generally, even in the manufacture of mechanical goods, such as belting, in which line balata has met with its greatest demand.

The present and prospective importance of balata in the rubber industry has led to the designing of many machines specially fitted for use in connection with this gum. It is in order, by the way, to record here a tribute to the designers and builders of machinery, as a more important factor than may have been recognized, generally, in the development of the india-rubber and allied industries. As THE INDIA RUBBER WORLD sometime has pointed out, what are called "inventions" are not, as a rule, the result of one man's work. It may be that the merest suggestion of a new application of rubber occurs to a man unfamiliar with the qualities of this material, and certainly not competent, personally, to deal with it. He consults a rubber manufacturer, whose more practical knowledge leads to suggestions which further the development of the "invention." But

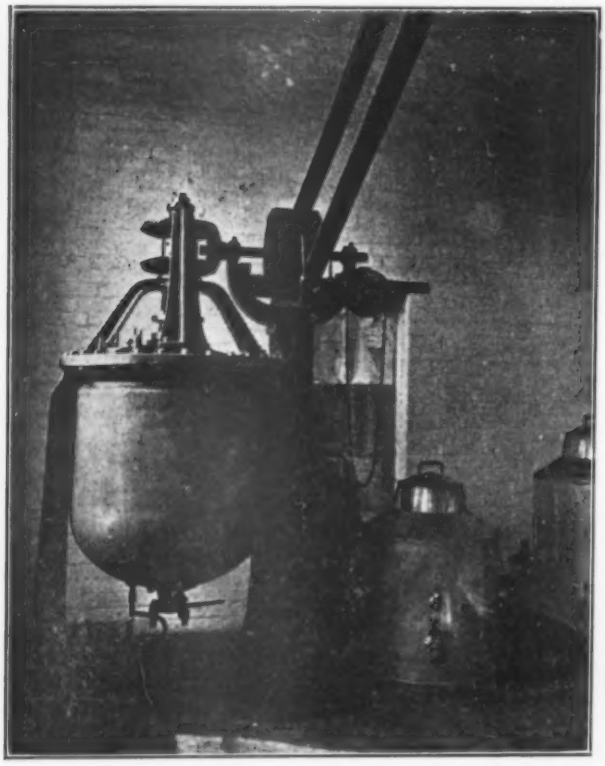


BALATA WASHING MACHINE.

[Designed to wash 2 cwts. of balata at one washing; driven with gearing from main shaft fitted with disengaging gear. Washing capacity, 10 cwts. in 10 hours.]

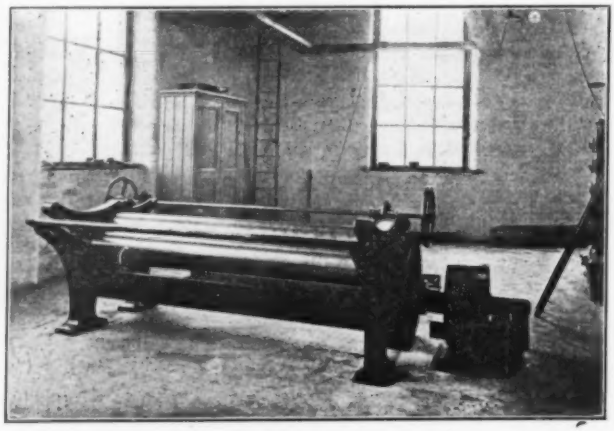
SINGLE COATING SOLUTIONING MACHINE 66 INS. WIDE.

[Comprising one front upright hot box 10 feet high. Machine with 2 sets of cast iron rollers (hollow), solutioning trough and bogey, dipping roller with brackets, doctor blades for cleaning back roller, fast and loose pulleys, and belt striker with necessary gables and gearing for rollers. Double countershaft with tapered cones, belt striker, pulley for driving the machine, also fast and loose pulleys on countershaft. Belt striker and driving pulley for main shaft. L-shaped hot box, horizontal length 25 feet, upright end 15 feet. Brackets and sparred rollers for drying arrangement, pair nipping rollers for recoiling the web, with gearing, fast and loose pulleys, and belt striker with necessary steam traps and wheel valves. Weight, 30 tons, complete.]



SOLUTION MIXER.

[With copper-jacketed steam pan, with gearing, fast and loose pulleys, belt stitcher, steam trap, safety valves, and main driving pulley. Weight, 2 tons. Additional: Two stock solution tins, steam-jacketed with spring safety valve, and carbon solution tin.]



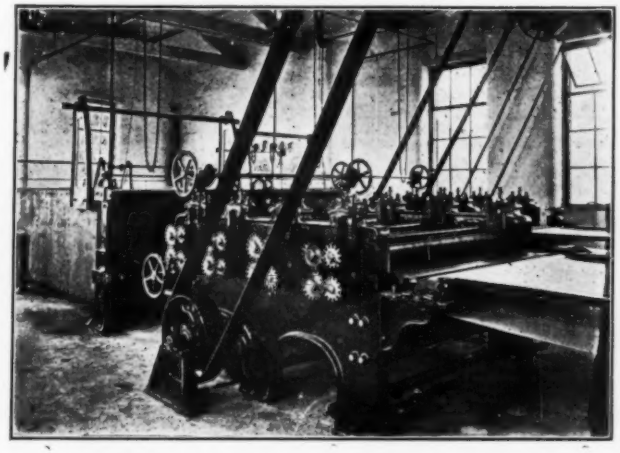
NIPPING ROLLERS FOR RECOILING.

Ripping Machine for Belt Slitter.

[Comprising two gables, pair cast iron rollers, tension bars, raising and lowering roll r to suit knives and pointers, knife and pointer bar with 6 knives and 12 pointers, power-driven folding arrangement, fast and loose pulleys, and belt striker; also, driving pulley for main shaft.]

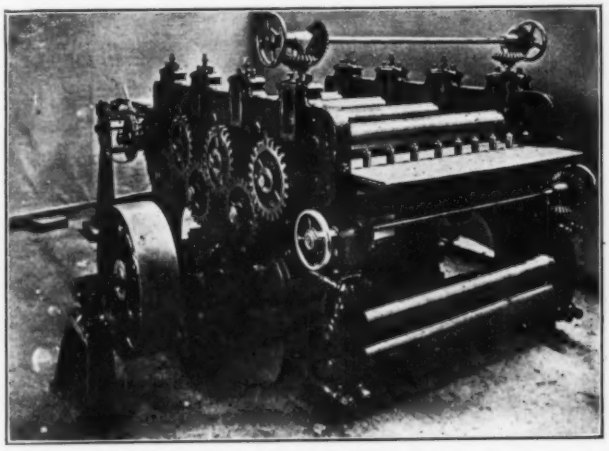
Belt Sticking Machine 60 ins. Wide.

[Hot box 18 feet long x 5 feet wide, with brackets and rollers; 3 rows steam pipes, steam traps, and wheel valves. Machine, 1 set tension rollers, 4 sets corrugated rollers with steel gudgeons, gables and gearing, driving pulley, tables, blank carrying standards and rollers (wood). Driving roller (cast iron), driven with chain gear fitted with disengaging gear, belt coiling machine, raising standard with spindle, and flanges. Double counter shaft with stepped cones, necessary pulley for machine: also fast and loose pulley and belt striking arrangement, driving pulley for main shaft. Weight about 14 tons, complete.]



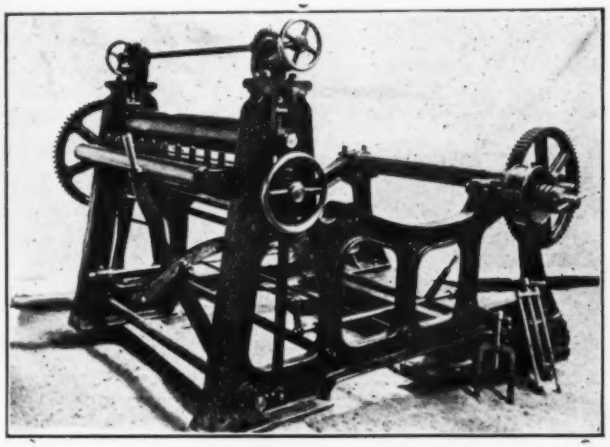
Another View of Belt Sticking Machines.

[Showing hot boxes.]



Belt Covering Machine 45 ins. Wide.

[Hot box 18 feet x 45 inches broad, with bracket and rollers; 2 rows steam pipes, steam traps and wheel valves. Machine, 1 set tension rollers (cast iron), 4 sets corrugated rollers (brass) with steel gudgeons, gables, and necessary gearing. Driving pulley tables, blanket carrying standards and rollers (wood), driving roller (cast iron) driven with chain gear fitted with disengaging gear. One set drag rollers and coiler combined with necessary gearing, fast and loose pulleys, and friction pulley on coiler. Fences on table of drag rollers. Raising standards with spindle and flanges. 2 sets countershafts (double), with 3 stepped cones on each shaft. Weight 3 tons.]



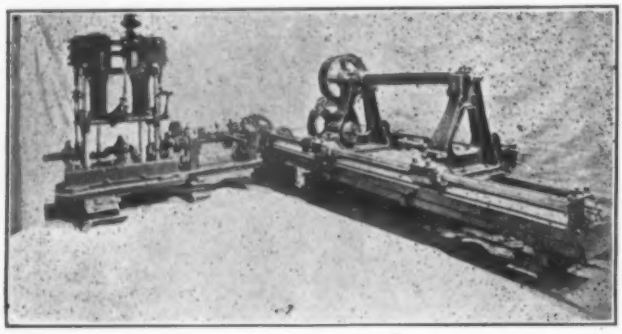
Drag Roller and Coiler.

[For belt-covering machines, 45 inches wide. For recoiling the belt from the blanket carrier.]

Hydraulic Belt Stretching Machine.

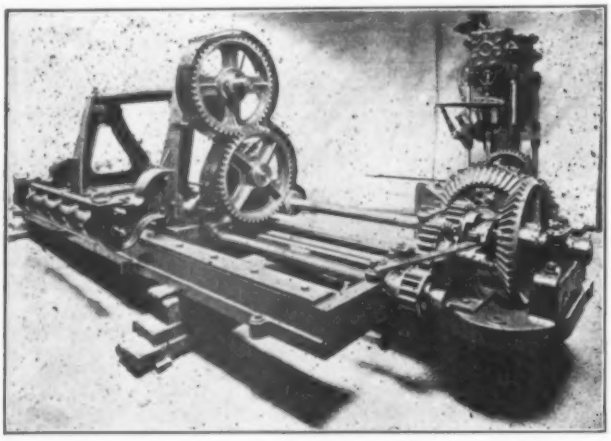
[Two 8-inch hydraulic rams with malleable cylinders and cast iron rams with 10-foot stroke; rope pulleys, guide posts, pressure gages, stays, two quadrant vertical jockey pulleys, double jockey horizontal slide, standard and sole plates for receiving shafts and special pulleys (72 of each); steel brackets to suit the channels for anchoring special lengths of belts; hydrauiic double-acting pump, 3,000 pounds pressure. Weight 51 tons.]

even this may not be enough, and, finally, the engineer—the machine builder—may have to be called in before the mechanical production of the new article is possible, at least on a commercial basis.

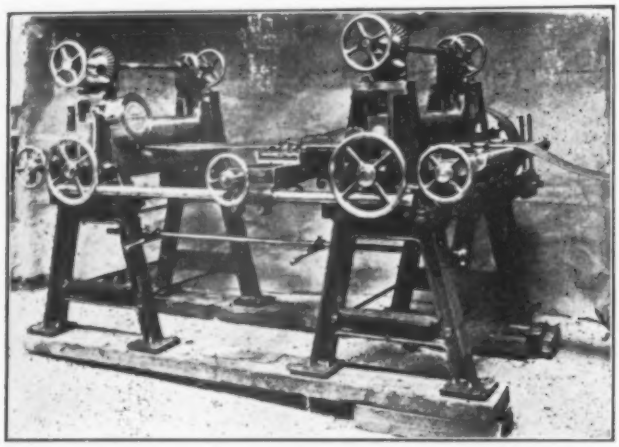


TRAVELING COILER.

[Comprising with vertical double cylinder, reversing engine, 7¼ bore x 10-inch stroke, fitted on gearing bedplate, then on to large sole plate with sliding coiler for pulling off, and on the belts to the stretching machine, and recoiling the belts after being stretched. Will coil a belt up to 45 inches wide. Weight 11 tons.]



ANOTHER VIEW OF TRAVELING COILER.



TWENTY-FOUR INCH BELT TRIMMING MACHINE.

[Comprising one set of raising standards, spindle, and flanges; trimming machine with gables; two sets plain rollers (cast iron), with saddle and adjustable knives; guide pulley on table; gearing and fast and loose pulley on machine and a measure; one 24-inch Belt Coiling Machine with friction pulley, countershaft with pulleys for driving machines in unison, fast and loose pulleys and bolt striking gear, with trimming knives from 2-ply up to 10-ply. Weight 3½ tons.]

It is not necessary here to discuss the peculiar properties of balata which render desirable a special line of machinery for its manipulation in the factory, but it may prove of interest to present views of several machines of this class, with a brief description of it. And in doing so we feel that not the least share of credit in the development of the industrial uses of balata is due to those who have brought these machines into existence. They have taken chances—discounted the future, so to speak—in devoting their intelligence and their energy to creating new factory outfits in advance of a pressing active demand, though it is evident now that the demand has arrived.

DICK'S BALATA PATENTS.

THE development of the balata belting industry owes much to the work done in this branch by the important manufacturing firm now styled R. & J. Dick, Limited, of Greengate, Glasgow, Scotland. While the business was conducted as a partnership, under the personal attention of the two brothers who founded it, some patents relating to balata were taken out by Robert Dick, the elder brother. As is well known, however, patents are not always any too informing, and the factory secrets of the Dick firm were always particularly well guarded. Probably very few persons—possibly no one—outside of the most trusted employés know how their balata is really made.

It may or may not be of suggestive value to the trade to have some details of a British patent (No. 7524—1886), granted to Robert Dick. It related to compounds for canvas driving belts, and, secondly, to a mixing and masticating machine for preparing and vulcanizing these compounds; at least such is the language of the specification. Two compounds are embraced under the patent referred to:

COMPOUND NO. 1.

[A hard tangle compound, for driving belts.]

Pure, cleaned, hard gutta-percha.....*Parts*	28.
Pure, clean, touch, selected gutta-percha or "balata" (preferably, more than less)	11.
Pure, clean "law white"—a new gutta-percha (preferably less rather than more)	9.
"Crumb" or good ground old vulcanized india-rubber	34.
Hardwood veneer dust	5.
Sulphur	6.50
Zincoxide (or zinc dust)	3.25
Flocking, of cut fiber of cotton textile fabrics	3.25
Total	100.

COMPOUND NO. 2.

[A softer, more elastic rubbery compound, for lighter driving belts.]

Pure, cleaned, tough gutta-percha.....*Parts*	8.50
Pure, cleaned "balata" or selected gutta-percha	8.50
Pure, cleaned "law white" gutta-percha	24.
"Crumb"	33.
Hardwood veneer dust	5.
French chalk, powdered	6.
Sulphur	6.
Zinc oxide (or zinc dust)	3.
Flocking	3.
Alum, ground	3.
Total	100.

The necessary apparatus for use in connection with these compounds is described in the same specification. Under another patent Mr. Dick described applying gutta-percha solution to canvas by running an endless belt over a table, presumably spreader fashion, coating one side of the fabric, then passing it over a fiber, the fabric being guarded by sheet iron flame traps so that it will not ignite, the heat of the fire causing the solution to pass into the fabric; then it is run over spiked rollers to dry it, after which it is wound on a reel. Subsequently the other side of the fabric is treated the same way.

IN Para, Brazil, New York bottled beer sells for $1. Para is where much of the world's supply of rubber comes from. The demand for automobile tires has increased the price of rubber. Para's prosperity shows itself by putting up the price of beer.—*New York World.*

IT is reported that an insulated wire and cable works, the first in Holland, is to be be established at Doetinchem, near the border of Westphalia.

The India Rubber--Trade in Great Britain.

By Our Regular Correspondent.

IN my last notes I made some reference to rubber planting in Tobago, and since then I have had the opportunity of discussing this part of the world on the occasion of the visit to Lancashire of West India cotton growers under the leadership of Sir Daniel Morris. Strictly speaking, the topic of cotton growing hardly comes up for consideration in this journal, but as all rubber manufacturers buy cotton cloth of some sort or other I am not traveling far out of the range of legitimate topics. Judging from the speeches delivered at the various meetings, there is no doubt as to the success which has attended the cotton growing movement in the West Indies—more, perhaps, in Antigua, Barbados, and Montserrat than in Jamaica. The British Cotton Growers' Association, it may be said, has for its president and moving spirit Sir Alfred Jones, K. C. M. G., head of the Elder Dempster Shipping Co., and he has all along maintained that the movement which received by no means universal support in Lancashire would prove a commercial success, both in the West Indies and in West Africa. I said in my last notes that the sugar growers were to a great extent giving up their business and starting rubber plantations. According, however, to one of the cotton planting delegates, sugar is still to remain as the king, with cotton as the queen of planting interests. Nothing was said about rubber planting, and I am left to infer that its position will be that of knave rather than ace. One of the speakers referred to the fact that in some cases where a year or two ago they had obtained very satisfactory financial results, the area under cultivation had since been enlarged and pests and disease had made their presence felt, with the effect of seriously diminishing the profits. These facts are not without significance to acclimatized rubber planters, as there are not wanting pessimists who forsee an analogous condition of affairs. Sir Alfred Jones's interests are by no means confined to cotton growing, and in the conversation I had with him and Sir Ralph D. R. Moor, K. C. M. G., late governor of Southern Nigeria, rubber topics were prominent.

PLANTING IN THE BRITISH WEST INDIES.

With regard to the much needed improvement in certain West African brands of rubber, Sir Ralph was emphatic that this could only be effected by penalizing the merchants for exporting rubber under a certain degree of cleanliness or purity. If this were done, the merchants would soon give the native gatherers to understand that inferior stuff would find no market, and that it was imperative for them to mend their ways. This, he said, would prove much more efficacious than any attempts to overlook or control operations in the forest. At the same time, the necessity for scientific research in connection with the tapping and coagulation was recognized, and there is plenty of opportunity for those who feel inclined to brave the rigors of the climate. According to Sir Alfred Jones the work done by the Liverpool School of Tropical Research has made West Africa quite healthy. This probably means that a great improvement has been effected in the conditions formerly prevailing; I hardly suppose that West Africa is as yet diverting the stream of tourists from the recognized sanatoria.

So far the present year has proved more prolific in legal cases than any which I can call to memory. The long protracted case of Huttenbach *v.* North Western Rubber Co. has finally gone against the Huttenbach Co. in the Court of Appeal. By the way, a printer's error recently led to my making a statement in these notes to the effect that Pontianak as sold was usually dry. What I intended to say was that it was frequently very wet, low qualities containing over 60 per cent. of water. Its exportation from Borneo in this state is in accordance with the general procedure with rubber out there, soaking in water being adopted as a safeguard against oxidation. Best quality jelutong, which has been as low as £14 10*s.* per ton, is now £18, and Liverpool merchants find it difficult to book forward lots at a reasonable figure, so much of it being wanted for the United States, which is still by far the most important market. This is rather a digression from the legal case with which I started, but an attempt to summarize the legal proceedings in which both sides scored a certain amount would take up too much space. The same remark may be made with regard to the New Motor and General Rubber Co., Limited, *v.* David Moseley & Sons, Limited, which went against the latter firm; Lotter *v.* Waste Rubber Co,. and Francis Shaw & Co., *v.* the Sirdar Rubber Co., Limited. The point as to whether certain motor tire molds were correctly made going in favor of the well-known firm of rubber engineers. Such cases as these are rarely reported in the legal columns of the London press and only superficially if at all in the local papers. Where the amounts involved are not very large it seems somewhat surprising that the publicity of the courts is resorted to when this means the unveiling of private business procedure to the gaze of competitors.

RUBBER IN THE LAW COURTS.

I wonder if the following observation made by counsel in the waste rubber case will be generally accepted in America? When waste rubber was sent to America, he said, it was quite a common thing for it to be rejected, because the firms over there knew that by that means they could squeeze the unfortunate Englishman into accepting a lower price rather than pay for the goods to be shipped home again.

THE introduction of power signalling on railways has necessitated the employment of vulcanized rubber cables in a new sphere, and there seems every probability of a greatly increased demand for this particular type of cable. A word or two on the subject generally may therefore prove of interest, more particularly to those connected with the cable branch of the rubber industry. Although one or two other systems of power signalling are being tried, the greatest success seems to have been attained by the McKenzie Holland and Westinghouse Power Signal Co., Limited, of Westminster, a concern which incorporates the Westinghouse Signal Co., of America, with the old-established signal firm McKenzie & Holland, of Worcester, England. This system, which may be called an electro-pneumatic one, has already established itself firmly in America, and large installments have already been completed or are in progress on British railways. Without going too deeply into mechanical details, the following remarks on the mechanism of the system may be allowed. The points and signals are worked by compressed air, which is controlled electrically from the signal cabin. This control is obtained by electro-magnetic valves in connection with each air cylinder, and they are energized, or de-energized, as the case may be, by the movement and resultant position of the lever in the signal cabin. Some of the benefits incidental to this system are speed and reliability in operation, additional safeguards that would be impractical with a mechanical installation, a saving in the number of signal boxes and signal men—as a larger area can be controlled from one box—and the relief of the signalmen from exhausting manual labor. The rubber cables, of course, connect the valve of the air cylinder on the signal part with the signal cabin. They are only of small diameter, not more than ¼-inch over all, including the lead covering. The best quality of rubber is required and the cables are submitted to certain electrical tests by the company before use.

RUBBER CABLES FOR RAILWAY SIGNALLING.

SYNTHETIC CAMPHOR.

WE have heard so much of late about the forthcoming synthetic rubber that a reference to another tree product which has been successfully synthetized may not be without interest. More than one chemical process has been employed for making synthetic camphor, and there is no special patent in existence which makes the business a monopoly for one firm. It is important to recognize this because it has been assumed from the failure of a company specially concerned with the manufacture that the commercial production of synthetic in itself has proved a failure. This is far from being the case, as one or two chemical firms, by reason of their intimate knowledge of the processes involved, are now making it successfully. Firstly, a product somewhat similar to camphor is made, this being iso-borneol acetate, and this after being saponified and oxidized yields actual camphor. This is the same as the natural product, except in its optical character. Curiously enough, the synthetic camphor is composed of equal parts of dextro and lavo rotatory substance while the natural is entirely dextro rotatory. Unless a very close combination is effected between the Formosa producers and the chemical manufacturers it is clear that the celluloid makers who are the principal users will reap most of the benefit from the discovery, a considerable reduction in price having already occurred. At the same time buyers of natural camphor are not disposed to take up the new product without a considerable inducement in the price, recent quotations showing that while the Formosa camphor sells at 2*s.* 5*d.* per pound, the synthetic is priced at 1*s.* 10*d.* According to those closely connected with the trade there is little likelihood of any combination being effected between the growers and the chemical manufacturers to keep up prices, so that a further decline may be confidently looked for.

SOLUTION FOR CEMENT WORK.

UNDER the heading "Quellung oder Lösung" (Turgescence or Solution), an unsigned article in the *Gummi-Zeitung* contains some matter of considerable interest to the rubber cement manufacturer. The writer thereof mentions Macintosh as the pioneer in manufacture of waterproof cloth, who also applied his rubber cement for sticking together his "kamptulikon" tiles. These were cut from sheets made by mixing cork powder, fibrous materials, and india-rubber. It is said that these tiles were extensively used as a lining for the royal mews in Windsor.

From the various solvents used, ether is given as one of the least satisfactory ones, which has been already applied in early days by Maquarh and Nees Von Esenbeck, who ran the latex of a *Ficus* specimen into the solvent. Solvents in general use, as gasoline, benzine, naphtha, toluole, and the like, are considered to swell only the india-rubber and make it sticky and flowing—that is to say, to change only its consistency. The proof of this proposition the author finds in the difficulty (the author says impossibility) of filtering a benzine cement through a paper filter.

As the most advisable way to make a rubber benzine cement, it is recommended to cut the raw rubber in thin slices which are to be allowed to dry completely before they are soaked in benzine, under careful stirring, and afterwards so much solvent is added as to get the desired concentration. Any unnecessary stirring is to be avoided, in order to save the tissue of the rubber and give the cement the highest tenacity.

For incorporating pigments into cement, the author points out that this should be done on the mixing mill before the rubber ever touches the solvent. Benzole is given as a specially good turgescent for rubber. From such a thick india-rubber solution the rubber itself can be precipitated by alcohol again as a white substance, which, however, changes its color under the influence of light and air.

As a true solvent for rubber the author recommends amyl-acetate which is said to dissolve india-rubber at a normal temperature in the course of a few days, the cement being of a more or less dark color, according to the concentartion. After evaporating this solvent the india-rubber is recovered unchanged. The author suggests that this solution is most suitable for impregnating porous materials, and thinks that the application of such a solution for impregnating leather gloves for electricians would be a success.

Though a solution of rubber in amyl-acetate is of a more liquid consistency than a benzine solution of Pará rubber cut from the blocks and dried, it is hardly conceivable, why, for impregnating purposes, a mechanically broken down rubber would not answer as well. Such a cement is certainly much cheaper, will filter through porous material, and make leather gloves certainly as waterproof as an amyl-acetate cement. There is no reason why such an amyl-acetate solution must not be considered of a strictly colloidal character, which is signified by the qualities of not being capable of ionisation or conductivity, and only to very little degree of hydro-diffusion, but on the other hand, being able under certain conditions to gelatinize or pectise.

ERWIN MEYER, PH.D.

ONE MORE "ARTIFICIAL RUBBER."

[FROM "THE HOME AND COLONIAL MAIL," LONDON.]

THE claim is made for a professional man of Burton-on-Trent that he has at last succeeded in making synthetic, or artificial, india-rubber. According to the Birmingham *Daily Post*, the inventor, who does not wish his name to be made public, maintains that his is real rubber, which could be sold at quite 25 per cent. less than the present price of natural rubber, and then a margin would be left for a good profit. He has decided to promote a factory in Burton for the manufacture of the rubber—that is, if everything turns out as he confidently believes it will.

His achievement, he said, had involved tremendous work by day and many sleepless nights, and on more than one occasion his patience had been tried almost to breaking point. This limit was once actually reached. He had got the material into a certain condition, but could get no further with it. This, coming upon a long series of disappointments, induced a feeling of disgust, and in annoyance and despair he left the stuff, giving the thing up as a bad job. A few days later, in passing through his laboratory, he casually glanced at the mixture, and, to his astonishment and unbounded delight, there it stood congealed to the very point for which he had been striving for years. "You see," he explained, "it was necessary for the preparation to cool before it developed correctly, and so, in a sense, the discovery—at least in its final stage—was accidental."

This is by no means the first time that artificial rubber has been announced among new discoveries. There are reasons for believing, however, says our contemporary, the *Financial News*, that the present scheme is more serious than any of its predecessors, and that it is likely to be vigorously taken in hand.

PROGRESS IN PERU'S RUBBER AREA.

THE Loreto *Commercial*, a Peruvian newspaper, in a recent article on the work of the Peru-Pará Rubber Co. (Chicago), refers to what has been accomplished by their supervising engineer, Señor Oscar Mavila, in the matter of constructing roads through the rubber lands covered by the company's concession. Those roads are expected to have an important influence on the business of Loreto, since rubber may now be brought there overland in six days from points whence formerly it could only be brought in a roundabout way by canoes, sometimes requiring thirty days or more. The *Commercial* also mentions the importation by the company a telephone system, with sixty-two miles of wire, which is expected to facilitate the working of rubber at a greater distance from the water courses than has been the case hitherto.

The Annexation of the Congo to Belgium.

*By Hon. James Gustavus Whiteley.**

THE American rubber trade has quite an interest in Congo affairs on account of the fact that the Congo Free State is an important source of crude rubber. For the past few years that country has been maintaining an annual output of about 10,000,000 pounds. Approximately half of this rubber eventually finds its way to New York via Antwerp.

It does not seem probable that the transfer of the Congo Free State to the Belgian government will have any marked influence on the rubber production of Central Africa or will, in any serious way, interfere with the proper development of the concessionary companies. There is nothing unexpected or revolutionary about the affair; it is simply the consummation of King Leopold's long cherished plan to give his people a colony as an outlet for their energies. The King got the expansion idea long before his subjects took it up. Nearly 30 years ago he saw that the Congo was a good thing going a-begging, so he put his mark on it and reserved it for the Belgians whenever they should get ready to take it over. For many years the Congo was looked upon by the world in general as an expensive royal hobby. To explore the country, to establish means of communication, to drive

LEOPOLD II, KING OF THE BELGIANS.

out the Arab slave traders and generally to "set the house in order" cost much good Belgian blood and much of the King's treasure, for the expenses came out of His Majesty's private pocket. Now that the heat and burden of the day is passed and the Congo is self supporting, the Belgians are willing to take it over and the King has handed it to them as a royal gift.

The annexation bill finally passed the Belgian parliament on September 9. The treaty of session between the Congo government and Belgium provides that the rights of all *concessionaires* shall be respected and that Belgium shall take over all the Congo's contracts and obligations as well as its assets.

The most valuable asset is, of course, the natural wealth of the country, which occupies nearly as much territory as the portion of the United States lying east of the Mississippi river, and which is extremely rich in rubber, ivory and copper.

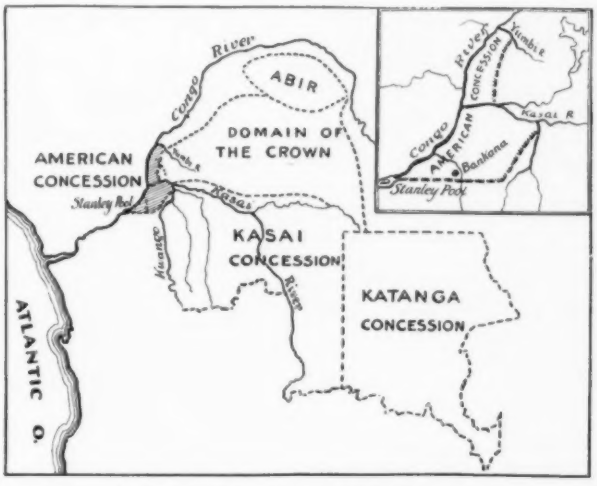
In addition to this asset, Belgium receives stocks and bonds, real estate in Europe, ammunition, stores, equipment, et cetera, valued at more than $22,000,000.

On the other hand the liabilities of the Congo state, consisting chiefly in outstanding bonds, amount to approximately $22,000,000.

These last two items about offset one another, leaving the vast natural resources of the country practically unencumbered.

King Leopold also turns over to Belgium all the lands and funds of the Fondation of the Crown, which embraces among other things quite an important tract of rubber forest lying to the east of Lake Leopold, and the revenues from which have hitherto been set aside in a separate fund by the King's orders, and used for public improvements in Belgium as well as in the Congo.

In consideration of receiving this Crown property in addition to the rest of the Congo, Belgium agrees to respect the concessions granted in the crown lands to two companies in which Americans are interested, and to the Mission of the Scheut Fathers; to continue to pay a subvention of $12,000 to certain Catholic missions working in the district; to grant Prince Albert a small civil list of $24,000 until he ascends the throne; and to give the Princess Clementine $15,000 a year until her marriage.



AMERICAN CONCESSION ON THE CONGO.

[The shaded portion on the left denotes the 3,800 square miles ceded to the American Congo Co. The *domaine de la couronne* is outlined, and the areas under concession to the ABIR, Kasai, and Katanga companies. A detail map of the American concession is given on the upper right hand.]

Belgium also promises to finish certain public improvements already begun and which are to cost not more than $9,000,000.

Belgium agrees further to create a fund of $10,000,000, which shall be used by the Crown, with the sanction of the Colonial office, for the benefit of the colony, especially in such works as schools, hospitals, subsidies to missions and scientific expeditions.

It will be observed that the only two important amounts that Belgium is called upon to pay (namely the $9,000,000 and $10,000,000 funds) are expected to come out of Congo revenue and, moreover, she practically pays it to herself as the money is to go on public improvements in Belgium and in the new colony.

The only thing the King demands for himself is the right to continue to make use, during his life, of certain palaces of the Congo Crown situated in Belgium and on the Cote d'Azur and to receive the proprietary right in 100,000 acres of land in the Congo where he proposes to carry on experiments in the cultivation of coffee and cocoa as a useful object lesson to colonists.

*Consul General in the United States of the Congo Free State.

The budget of the Belgian kingdom and the Colonial budget are to be kept separate and the Congo bonds are not considered, legally, as a claim on Belgium but only on the colony. This question caused some debate in parliament, but is of little practical importance as, in the first place, there is not likely to be any default on those securities and, in the second place, if there were, Belgium would probably find it expedient to stand behind the colonial bonds.

. So much for the treaty of cession which seems to start the colony on a fair basis and which, by providing for the two development funds (of $9,000,000 and $10,000,000 respectively) seems to insure that Belgium shall expend a proper amount on improvement of the property in accordance with the policy which has prevailed during the King's personal administration.

As far as the machinery of administration goes there is quite a change. The country passes from the personal rule of the King to the control of the Belgian parliament. There is to be a Colonial minister, as in England, who will be responsible to the Belgian parliament. There will also be a Colonial council, consisting of fourteen members, eight of whom will be appointed by the Crown and six by parliament, so that every shade of opinion will be represented. The finances will be controlled by parliament, which will consider and vote on the budget each year. Proposals for concessions will be laid before parliament before final action. If there is any objection to the conditions, parliament may of course bring in a vote of "want of confidence" in the ministry and thus overthrow the proposition.

There has been quite an agitation against the existing Congo concessions which seems to have originated among certain Englishmen who had none. Far be it from me to say that they were not actuated by the most disinterested motives, for they themselves have publicly proclaimed the purity of their purposes. It was claimed that the Congo concessions were contrary to the Berlin treaty by which the Powers (including the Congo government) bound themselves not to grant any "monopoly" in the Congo basin—a geographical term which includes possessions of France, Germany, Portugal, and England as well as the Congo Free State. As there are a number of competing concessionary companies in the Belgian Congo it is difficult to see how any "monopoly" has been created. Moreover, the Congo concessions are "on all fours" with the concessions of the other powers in the Congo basin. If the Belgian Congo concessions are not in accordance with the Berlin agreement the concessions given by other powers in the Congo basin are equally illegal.

The Congo concessions, most of which are for rubber, cover about one-fifth of the territory. The rest of the rubber forests is either exploited by the Congo government, or is open territory where traders may go in and trade indiscriminately. The natives own their huts and villages and their farms. Most of these lands are held tribally, but there is no appreciable amount of rubber on these holdings on account of the fact that rubber had no value to the native until after the arrival of the white men. Hence, the great rubber forests were never appropriated by the native tribes.

These concessions have been granted by the Congo government on various terms. It may be said in a general way, however, that the State has usually demanded a half interest in the profits, or 50 per cent. of the shares, as the price of the concession. The dividends on these shares have been put into the government treasury and are used to carry on the administration. None of it has ever gone to the King personally.

Some of the concessionary companies had, at one time, a large amount of administrative jurisdiction over their concessionary districts, almost as much, in fact, as an English "chartered company." This furnished the companies with a means of coercing workmen, which was sometimes abused and which was found undesirable. The King abolished this system several years ago, so that at the present day no individual or concessionary company can in any way constrain a native to work. This principle is embodied in the new Colonial charter (which is a sort of "constitution" of the new colony), but inasmuch as it has already been put in operation by the King it will cause no unsettling of labor conditions.

The rubber companies have to obtain their laborers in the open labor market by making an attractive offer of wages. In certain districts it is sometimes a difficult question. The native has a rather inordinate share of mankind's antipathy towards work, and as his wants are few and easily satisfied he doesn't always see the use of "getting busy." Of course there are some things which every self-respecting native wants, such as an accordeon, a white umbrella, and enough cloth to buy a wife, and these things he is willing to work for. After he gets the wife he generally prefers to "lay down the shovel and the hoe" and let her support him, whereby he has more time to devote to the accordeon and the shelter of the white umbrella.

While the labor problem is a difficult one, the rubber companies find it can be solved by the exercise of tact and patience and by studying the whims and fancies of the natives so as to offer them attractive rewards for work. That is the system they are working under now and the Colonial charter provides for its perpetuation. A native may work for a rubber company or not as he pleases. He cannot be constrained in any way. Moreover, a special committee has been constituted to look after the welfare of the native and to make a report each year.

COTTON PLANTING PROGRESS.

THE production of cotton in Lagos, in British West African colony, has not yet reached proportions to cause a revolution in the markets of the world, but it is not to be overlooked in dealing with the whole cotton situation. What has been done affords evidence that the soil and climate of Lagos are favorable to cotton planting, and that native labor can be made available for this work. What is more, the encouragement given by the British Cotton Growers' Association, backed practically by the cotton industry of England, is to be taken into account. The following figures, relating to exports from Lagos for the first half of 1908, are from an official source: Exports of cotton, 4,001 bales, valued at £37,079 [=$180,444.90]; exports of cotton seed, 4,116,965 pounds, valued at £4,458 [=$21,694.86]. Lagos is now an important source of rubber, but did not reach this condition all at once; in fact, it was ten years after the export of rubber began before it equalled in value in any year the present output of cotton.

Six prizes for cotton grown in the Federated Malay States were offered at the fifth joint annual Agri-Horticultural Show, at Kuala Lumpor, Selangor, held August 10-12.

IS "DIABOLO" DECLINING.

WHILE the rival alleged inventors of the game of "Diabolo" in Europe are still at war, the game would seem to be already on a decline. Although several of the leading sporting goods firms in America have been active in attempting the introduction of the game on this side of the Atlantic, it has as yet shown no signs of popularity here. A writer in the New York *Sun* says:

"Diabolo did not last long here and indeed never took as it did in Paris and to a certain extent in London. Last spring and at the beginning of the summer a good many children were to be seen playing it hereabout, but now one is scarcely to be found. Some of the department stores employed demonstrators to teach the game to customers, but to little effect.

"'It's too simple a pleasure and too tame a game for Americans to take greatly to it,' said an observer. 'And, furthermore, few have the patience to learn the little balancing trick.'"

The Export Trade in Rubber Goods.

By Alexander Macpherson.

[Note.—This article is intended for the man who is considering the advisability of extending his sphere of usefulness to embrace the world's markets—not for the manufacturer who is already doing a large export business.]

BEFORE launching out it is well to consider how you will handle the business when you get it. If going into the export of rubber shoes with the idea of working off surplus stocks, "Don't." Lasts for the Australian trade differ materially from *a la mode* in America. Northern Europe calls for larger sizes than elsewhere. It is a mistake to think you can fill orders from abroad when you are slack, or when you like. You introduce your goods, your importer sells them for stated delivery and usually orders well ahead. He has spent his time and money getting business for you and states that he must have delivery at a specified time. To be fair, you must ship to meet his requirements. If you do not, he is out of pocket and so are you. It has cost you money to open up in new territory, and repeat orders are generally required to make a real profit. You must plan to make from special lasts and to turn out the goods in time to reach a certain steamer, or a season's trade may be lost by the importer and a good customer by you. In order to do a successful export business you must be prepared to give export orders first attention, even if at a loss of profit obtainable by marketing an equal given quantity of goods at home.

In mechanical rubber goods you may have to make many special lines to do any great volume, and plan to ship goods of dimensions unusual on the home market. To follow the English practice of turning out garden hose in 60-foot lengths would mean ripping up the hose room and putting in new plant, and besides you can sell the 50 foot "coils," as the New Zealanders call them, almost as readily. But it is no use sending 400 foot rolls of 12 inch 6 ply belting to Mexico, when 100 foot lengths are ordered done up in separate bales so as to ride mule-back over the mountains. Your man knows how he wants goods packed. If he orders "specialties" generally done up by you in cartons, to be shipped 100 pairs in bulk in a case, he wants them that way, and he wants them at a figure lower by the price of the carton. He also wants them in as few cubic feet as possible to keep down the freight charge. The steamship lines accept your shipment to be charged for cubic measurement or weight at their option. The goods may travel thousands of miles and be transshipped many times, and must be packed accordingly. Containers for home shipment will not do for foreign; cases must be strong and metal bound; bales must be doubly secure and compact as possible. Safeguard against pillage *en route*.

Export business means increased details in your office, perhaps extra staff, and the supervision of some of its best members. It means cablegrams and cable codes to study. You must be posted on declarations for the different countries and to pay handsomely for some of them. It means being posted on freight rates and sailings of vessels. Your shipping arrangements must be made at the ports of sailings. You will educate yourself in foreign exchange and will get posted on letters of credit, new forms of drafts and settlement in London by cable. All this takes time, money and minutest attention to detail. You may get a heavy foreign mail to-day, the return mail closing next day, with no other for four weeks, numerous inquiries to answer, quotations on special lines to give, and a friendly buyer's commissions to execute in time for to-morrow. Such occupation will likely keep you out of mischief for that day and night, but your staff will hardly be expected to appreciate the extra tasks. Then there is the study of trade-mark laws to be considered. Should you, after all, decide seriously to tackle the export business, then, (1) Where shall you send your goods? (2) How shall you introduce and market them? (3) What shall be your prices? (4) On what terms shall you sell and how collect? There are many other queries but these are the main ones: the others are sub queries.

Where Shall You Send Your Goods?

You want to know which countries are most likely to absorb your goods in the largest quantities and on the most preferred tariff basis. If you are Canadian, if you go the right way about it you can obtain fairly accurate information from your government at Ottawa. If manufacturing in the United States, a letter to the department of commerce and labor, inquiring the imports of stated lines of rubber goods into any given country, together with the value of goods made in such country, also information as to the customs tariffs, giving you particularly the tariff preference your country's goods enjoy, would be likely to be answered by a letter giving such information or promising to obtain it for you. It will pay you to be posted in advance. In Japan there are factories making rubber goods and ready to promptly fill special orders. British and Canadian manufacturers send their goods in on a 10 per cent. basis, while the Japanese collect 40 per cent. *ad valorem* on those from the United States. Americans do sell rubber goods in Japan, but these circumstances are to be considered. Take Brazil, on the other hand, with which country the United States have a treaty whereby certain manufactured products including rubber enter Brazil at a rate of duty 20 per cent. lower than that collected on goods made in other countries. Brazil has been developing rapidly, railways building, no rubber manufacturers there; most stable government in South America. Why not make full inquiries about Brazil? But don't spend a thousand or so in trying to open a market for rubber footwear there. The largest dealers in leather shoes in Rio de Janeiro told me once that he had had two cases of sand shoes in stock for years. But under a high protective tariff some general manufacturing is done. The established and new railroads are and will be users of mechanical goods; mostly all to go from Europe unless American manufacturers avail themselves of their opportunities. You will be conferring a blessing on the Brazilians if you establish your goods on their market. I never saw such rotten rubber goods as were on the market when I visited it in 1904, and still I sold good goods, at a fair profit, and more have followed them. These countries are mentioned for purposes of illustration. The preliminary investigation of any field can be carried on at long range at practically no expense beyond postage.

How Shall You Introduce and Market Your Goods?

There are many ways. There are the New York exporting houses who would likely take on your line. You may obtain a list of importers of your class of goods in a given country. You may write them with catalogues and price lists. You may learn of reputable agents and may correspond with them. At the same time you may take up much time and may burden your files with a voluminous correspondence. You may be called upon to send many samples (no charge), and may be induced to contribute many dollars towards traveling, office and advertising expenses, and if your goods are "mechanicals" I am satisfied that you will only be using up energy, time and money to no avail. In my experience the right way to introduce and market your goods abroad is by means of a personal canvass on the part of one of your head men; the higher up the better, so long as he is adaptable, has good judgment, has enough decision

of character to act on his own judgment and sufficient backbone to stick out for a fair profit and your established export terms. I shall take the liberty of quoting on this point from a "Report Upon the Conditions and Prospects of British Trade in Canada," by Richard Grigg, special commissioner of the advisory committee of the British Board of Trade on commercial intelligence:

"To send a son or nephew not long from school on a trip to Canada, which is designed to combine pleasure, education, and business, is admirable as far as the two first objects are concerned, and useless or worse than that as regards business. The men who go out for business purposes should be thoroughly competent and able to speak with sufficient authority at home to command attention for the lessons they learn."

The man who goes should know it all when he returns. Be prepared for a stiff expense account. The "foreigner" is "had" at all turns. You or your man represents a big house—the farther away it is the larger it must look. Entertaining cuts a large figure in some countries, and when the country is reached special clothing may be required and only procurable at high figures. Suppose it is decided that you shall go yourself.

WHAT SHALL BE YOUR PRICES?

In shoes you can readily obtain the prices of the large exporters of your country, and although your goods may in your opinion be much better you will, I think, find that you cannot with your unknown line obtain at first prices much greater than those of the other makers unless you give a long exclusive agency to one buying house in a country, and that without any guarantee of quantity to be purchased. I had the pleasant experience in one country of being told by several that my line, which had been known there for some years, was the best on the market, "but a little high in price." I have often wondered, aside from the merits of the goods, whether the "little higher" price had not something to do with the esteem in which the goods were held. Determine at what price you can profitably sell your goods net and then base your selling price and commission upon this figure, having the prices of the country in mind. This applies to mechanicals as well as shoes, but in mechanicals your prices may vary from those of others more greatly than they can in shoes. The standards vary so greatly in the former that their profitable distribution is much a question of salesmanship. Be able to give prices in the currency of the country, and net figures. Lists differ in different countries so that discounts do not mean much to the average foreign buyer. Study foreign moneys and the metric system.

ON WHAT TERMS SHALL YOU SELL AND HOW COLLECT?

Terms are various. I have seen statements showing terms from 90 days to twelve months. On twelve months terms and with fair prices you may expect to do more business than if you sell for cash. If you had a salaried staff to sell and collect you might make your terms the same as at home, but when you are distributing from North America the only clean safe way to do business is sight draft against letter of credit or sight draft against documents. I was diffident about quoting such terms at first; it seemed to me worse than C. O. D. It seemed unreasonable that the customer should be expected to pay for the goods before he had even seen them. But all the large importing houses are used to it. In fact, one house I know of insists upon paying cash when they place an order. If weight cannot be exactly computed, they prefer to overpay and have the balance to their credit.

Useful information to carry is weights of the goods; inland freights, if any, so you can compute cost of laying down at seaboard; bonding charges, if any; cartage charges and cost of consul's certificate. All figure in the cost of laying down, and while freights are not so important on the percentage basis in the rubber business as in some other lines, the information is useful. Remember that the percentage to lay down varies materially with the value of the goods and the space they occupy. Cheap suction hose takes a greater percentage to lay down than high-grade valve gum in 6 x 3 x 1-inch slabs. Don't prepare to quote a definite laying down percentage; this is bad policy when you sell f. o. b. your factory, but be posted on these percentages so your customer can form his own laid down cost.

Say Brazil is your objective point. You have procured your letter of credit and accompanying letter of indication and the bank has told you how to keep and use them. You have say £50 in gold on your person. The "sovereign," costing about 487 cents, will buy as much as the $5 gold piece costing 500 cents. A passport may be useful. It is easily procured and does not take up much room. Take invoices of your samples in triplicate, each with the proper declaration of the country attached. See that your life insurance policies have endorsed upon them permission to travel to your destination and back. You may be asked to pay a small extra premium. Additional accident insurance may be advisable and you may insure your samples and effects. Have duplicate sets of samples. Send one set ahead and take the other with you. Take a cable code with you and advise the office of it. Keep the office posted.

Of course you have seen to it that you have secured the best accommodation on the steamer and that your stateroom is on the side from which the prevailing wind comes. And here just one word in your ear on the way to the Grand Hotel Something-Or-Other. They are all "Grand" there. You may be sorry for them all in the country you are visiting, but what's the use of rubbing it in? Kicks against his poor old country will hardly warm up a prospective buyer. If these poor benighted individuals talk Portugese or Spanish or whatever, give them credit for at least a little business ability. You may be able to hit off a four hour clip when you are at home, but the man in Rio, for instance, will know how to regulate the pace and you will find his mile an hour will give you more business there than the faster rate. Don't push them too hard. Remember that you are not there to educate them. Say the best you can of their country and deal with them as equals. Let them take their own time. Study them and their form of civilization and you will be traveling along the line of least resistance. Be prepared to drink coffee at all hours in Rio de Janeiro, as you would tea at 4 o'clock in a customer's office in London. By the way, if you think of turning your caravan towards that Mecca of the American manufacturer, dear quiet slow old London, cultivate patience and be prepared to give this most conservative market in the world a try out of at least three years before expecting profitable results, but we are in Brazil, not England. Adaptability is the text of the foregoing sermon.

Now serious work begins. Certain large exporters have their selling policies defined and will not depart from a set method of distribution. It is well to study local conditions. Frame thoroughly a policy which in your opinion is best suited to the field. Here is where judgment and decision come in,—with no intimate or business associate to talk it over with, perhaps unfamiliarity with the language. I have made calls of investigation upon merchants, interviewed agents, been followed by agents and importuned to leave my goods in the hands of one house for distribution. I have sat around Sydney or Melbourne, a week at a stretch, forming my policy and looking for the best men to carry it out—all the time itching to get down to selling but not offering one dollar's worth of goods, and if that is not hard work I do not know what is. To get the balls rolling is comparatively easy, but to decide where to roll them and who shall keep them rolling when you are back home is another matter. You are spending time and money, lots of both. The responsibility is yours. On you the glory showers or the blame falls a year hence. A wrong move, and you might better have spent the time on the farm and the money on the heathen.

Just a few words on an agency agreement. You must make the remuneration sufficiently attractive or your agent will devote

his energies to more profitable lines. He wants a fair return, and the really big agent will be best satisfied with the commission that will not hamper the free distribution by increasing the sale price. He wants a commission on all that comes into his territory, and rightly so, but make him agree to earn it all. Make him turn in traveler's reports with shipping marks, and make him agree to cover the ground at least a certain number of times a year, and check him up as well as you can. Goods entering the country after being sold into another country should not be claimed upon, but if a New York buying house orders goods to be shipped to a certain country, the shipping mark being one reported by your agent, then he is entitled to his commission. Insist upon shipping marks being given by the buying house, and thus know if your man has earned his percentage.

Having sized up your situation and having had your final draft of agreement signed by the party of the second part you are so far on your way, but do not post home then. You will notice I state "signed by the party of the second part." The agreement is *bona fide* on the part of both, and you intend to carry it out, but it is advisable to have it clearly understood when the agreement is being discussed and drafted that final execution rests with some one at home and that the instrument is to be dated at your headquarters. A "power of attorney" to sign for your company could easily have been obtained, but you are just as well off without it. No business man is going to incur the expense of your long business trip, size up the situation, and then draw up an agreement that he or his *confreres* will throw out on his home arrival, but two heads are generally better than one and you may find out that you have neglected to cover some point and this may be covered by correspondence at the time of final signature. The place of final execution is important. There are such things as disagreements and lawsuits. Have an eye on the possibilities and place yourself as advantageously as possible in case of misunderstandings. If you date your agreement Tokio it may be liable to interpretation in a Japanese court of law and you may be forced to attend in Japan at considerable loss and inconvenience to yourself, if you wish to have at least a look in. An agreement dated at your own town may shut off what might otherwise be an unjust lawsuit. Likely your agent is more keen to tie up with you than you may appear to be with him. He may overlook what may appear to be minor details, but because he is sloppy in his business methods is no reason why you should be.

Then to the pleasant occupation of filling the long felt want for your goods. Even if it is a straight selling proposition to one house do not sail away home with your substantial opening order. Visit the more important business centers with your agents. Open up, get him to make the *entrées* and then with him by your side sell the goods. He gets the commission but he also drinks in the rich vintage which has been ripened by you through the years; his thirst for knowledge is satisfied and he is stimulated to follow in your wise footsteps. By the time half of your prospective customers have kept their appointments and the other half kept you cursing over their lack of appreciation of your valuable time by forgetting to turn up, your agent will have all your arguments noted, stored up and ready to be improved upon when you have left. One of the heartbreaks for the man who likes to send the orders in is to find that many of the largest houses send all their orders through their London or New York buying houses. Some houses even object to selling the goods, depending on their buyers in the large manufacturing centers to purchase to the best advantage in fulfillment of requisitions from the local house.

Judgment will tell you how long to spend on the territory. Your agent, be he on commission or buying outright, will be glad to have you spend a year with him, but by the time you have visited the principal centers he and his individual travelers on the different grounds will be posted on the merits of your lines and have your arguments by heart, together with some new and perhaps better ones of their own, and then is the time to pack up for home.

You have accomplished your mission in the new field. Procure a copy of the custom tariff and regulations, and then back to where the staff are ready to tell you all about the good time you have been having while they have been slaving away at the same old grind. If you are at all receptive, the trip has taught you more about your own line than you ever knew before. You have learned a lot about other lines made elsewhere, and best of all you have broadened out and learned new business methods which may be put into practice with advantage. Then follow your men up, give them a good long letter by each mail, take your articles up by letter one at a time and keep your men refreshed and enthusiastic. If you have several agents one form of letter may do for them all, but keep after them. Write individuals short personal letters. Let them feel there is a personality thinking of them where the goods are made. Keep them fresh, or much of your foreign effort will have been of no avail. Let them know that you are following the sales closely. Your traveling men like a pat on the back when they have "pulled off" a good thing; so does the man on the other side of the world, be he principal or employé. Send the buyers a Christmas card in your own name. Above all, fill your orders promptly and carefully—answer correspondence by return of mail—and get the sight drafts out with the documents.

GUAYULE AREA OF MEXICO.

THE problem of how long the natural supplies of guayule in Mexico will last depends, for one thing, on how much guayule land there is. Naturally. And who knows? The censuses of most things in Mexico are not yet complete, as is indicated by the fact that a geographical commission appointed to map the towns of that republic reported recently the discovery of 7,679 towns which were not officially known to exist. How, then, should any one be expected to know how many square miles are covered with the guayule shrub? Of course, all these towns newly discovered by the government of Diaz are not of the importance of Oaxaca or Guanajuato, but all the same their populations will not longer escape paying taxes. Speaking of towns recalls the fact that when The India Rubber World inquired, in regard to a certain guayule property, "What town it was near?" the answer was: "That is hard to say; there are a good many towns on the hacienda." One can see how easy it would be for the *haciendado*, in fitting out his periodical tax list, to forget to include all the towns on his property. The fact is that there are yet many vast landed estates in Mexico, the resources of which are revealed only when Americans or other outsiders take an interest in their development, and not the least of these are in the states located within the guayule zone. The sole question, however, is not how much guayule country is there to be worked, but how much of the unused shrub is yet commercially convenient to the centers of the guayule rubber industry.

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of values of exports of manufactures of india-rubber and gutta-percha from the United States for the month of July, 1908, and for the first seven months of three years:

Months.	Belting, Packing, and Hose.	Boots and Shoes.	All other Rubber.	Total.
July, 1908	$105,444	$208,319	$306,099	$619,862
January to June	608,681	448,014	1,814,046	2,870,741
Total	$714,125	$656,333	$2,120,145	$3,490,603
Total, 1907	795,965	694,075	2,352,870	3,842,910
Total, 1906	663,536	615,154	1,803,512	3,082,202

Mechanical Goods Industry.

THE importance of the mechanical goods industry as affording a demand for india-rubber is perhaps more evident in the United States than elsewhere, on account of the existence of so many important works devoted to the production of this class of goods alone. That such specialization should exist in America, instead of each important factory producing a variety of goods is due to reasons which date from the discovery of vulcanization.

Charles Goodyear, the rubber pioneer, never became a manufacturer on his own account to a large extent, but such rewards as came to him for his invention of vulcanization were in the shape of royalties from manufacturers licensed to work under his patent. Up to 1844 the principal attempts at making rubber goods in America had been in the development of overshoes, but no success had been attained even in regard to these until Goodyear's discovery was made known. Naturally, the first licenses under the vulcanization patent were for its use in the footwear industry.

Subsequently other licenses were issued for the employment of vulcanization in the making of machinery belts, stationers' elastic bands, india-rubber gloves, waterproof clothing, and so on. In each case the manufacturer was permitted to utilize the new invention in only one line of goods. One license was for the manufacture of doorsprings alone, but an important business was built upon this seemingly slight foundation.

The Goodyear patent had the benefit of a special extension, making its total life 21 years, during which time the licensed footwear manufacturers were not allowed to make any other class of goods, and so with each of the other manufacturers. During those years, therefore, were developed, in different towns, groups of specialized rubber workers, which condition was continued long after the expiration of the historic patent. Whenever a new factory was established it was likely to be confined solely to that type of goods with which its promoter was most familiar. There is in the country to-day a factory in operation for more than a half century, and employing at times 4,000 workers, that has never produced a single article in rubber other than boots and shoes. Probably few of the employés there could turn out anything else in rubber. Similarly, with only two or three exceptions, none of the concerns now producing mechanical rubber goods has ever made any shoes.

Whether or not the policy of specialization is economically better or worse than that pursued in European rubber works, in several of which practically "everything in rubber" is made, might afford the basis for an interesting discussion. There would appear to be good reason, where it is possible, to keep a force of workers constantly employed on a given line of goods, thus rendering them always familiar with the details of production and always in a high state of efficiency, and there is some advantage in having the machinery of the plant always in operation. It is the fact of such specialization that such large outputs of a given line—airbrake hose, for example, or belting, or packing—are seen in the case of a single factory. No doubt in many cases economical production has been a result.

What have been termed "mechanical goods" have become so varied, however, that the factory attempting a full line can hardly be regarded as specializing very much. Hence, still carrying out the American idea, one will concentrate largely upon belting, another on tires, others on hose, while still others, leaving the heavier goods alone, will devote their attention to some specialty, say in mold work. But there are one or two factories in America that doubtless produce a greater variety of rubber goods than is to be seen in any single factory abroad.

It is practically impossible to estimate intelligently the volume of mechanical goods production. But it may be mentioned that the last United States census, in reporting operations for the year 1904, gave the following figures for the rubber industry other than rubber boots and shoes, and it may further be mentioned that insulated wire is not included. The druggists' sundries trade is embraced, however, and hard rubber:

Number of factories	313
Capital	$59,537,810
Salaries paid	$3,664,645
Average number wage earners	$24,882
Total wages paid	$11,217,270
Miscellaneous expenses	$8,087,962
Cost of materials	$48,002,012
Value of products	$77,950,095

It is probable that, in point of volume, the largest item of mechanical rubber goods is that embracing the many forms of packings, for steam and hydraulic use. When it is considered that every steam engine in the world, and practically every pump, requires to be "packed," and rubber enters into such a large proportion of all the packings made, it will be seen how important is this branch of the rubber manufacture. American packings have been introduced successfully into most foreign markets where a demand for any sort of packings exists, while, on the other hand, there is practically none imported.

Rubber belting for machinery has been produced in the United States in great variety, in immense quantities, and in sizes larger, perhaps, than have been constructed elsewhere. An important development in this branch has been in the making of conveyor belts, for use in grain elevators, in mines, and in factories of many kinds, for the economical movement of commodities. This general system, first devised in America, has become widely introduced, and while all the belting used for conveyor purposes is not manufactured in the United States, an important quantity for this purpose is exported.

The output of rubber hose, for various purposes, has become enormous. The large number of cities and towns having paid fire departments, with rubber or rubber lined hose embraced in their equipment, alone calls for the entire product of some good-sized factories, while such hose is also supplied by a dozen other concerns. The mandatory use on every railway train of air brakes and other safety devices calling for the use of hose, has created a demand for rubber which figures largely in the total output of mechanical goods. There must be taken into account also the widespread sale of common garden hose—something which is called for in practically every home in all towns having modern waterworks systems.

The exports of American-made packings, belting and hose, for several years past, have been stated officially to be of the values here given [for fiscal years ending June 30]:

1900-01	$565,726	1904-05	$994,100
1901-02	634,146	1905-06	1,221,159
1902-03	819,985	1906-07	1,253,369
1903-04	879,476	1907-08	1,347,775

During the last fiscal year there were shipped also to Alaska, Hawaii, Porto Rico and the Philippines similar goods to the value of $162,602.

Note must be taken, under this heading, of tires, which would seem to come properly under the head of mechanical rubber goods. While, as already stated, packings probably bulk larger in volume, tires lead among mechanical goods products in respect to value. While some motor car tires continue to be imported—probably by the owners of imported cars—most of the vast number of tires used in America are of home manufacture. It is probable, indeed, that half the rubber tires used in the world are made in this country.

The Rubber Planting World.

EASTERN PLANTING ON A SOUND BASIS.

AS a result of a recent visit to the Far East by Mr. Herbert Wright, who has become the editor of THE INDIA RUBBER JOURNAL after several years' residence in Ceylon in an official capacity which brought him into intimate relations with the beginnings of rubber culture there, he expresses satisfaction with the progress which has been made up to date and the fullest confidence in the future of the planting interest. After a minute examination of the business he concludes that rubber cultivation is on a perfectly sound basis, and any who may have any misgivings he advises to make a visit to the East, where the plantations of Hevea aggregate some 350,000 acres [=545 square miles]. He concludes a recent article by saying: "At the present time the Eastern acreage in bearing is small, and less than 2,000 tons of rubber will probably be exported during 1909; ultimately the trees already planted should yield a crop equal to that annually exported from Brazil."

WARNING AGAINST TOO MUCH PLANTING.

THE *Ceylon Observer* in an editorial on the rate of increase in the production of plantation rubber in Ceylon and the Federated Malay States, in the course of which estimates are made of the possible product of the more recent plantings, based upon the actual results from earlier plantings, and taking into account what is being done in India, this suggestion is made: "If again, five years later, southern Asia is expected to be producing (or capable of producing) 'plantation rubber' equal in quantity in one year to the present consumption of the world, it is surely time now to stop planting any more rubber, until it is seen what effect on prices largely increasing exports from the East from 1911 onwards may produce."

CURING "CASTILLOA" RUBBER AT LA ZACUALPA.
[Plantation in the state of Chiapas, Mexico.]

RUBBER INTERPLANTING.

THE first planting of rubber on an extensive scale in Ceylon was in connection with cacao, though afterward much rubber was interplanted with tea. Latterly rubber has been planted on a large scale without connection with any other crop. The *Ceylon Observer* finds, however, that the planting of rubber together with tea or cacao is still continued. The idea has prevailed at times that the tea might eventually be given up when interplanted with rubber, on account of the greater possible profits from the latter, but recently the tea situation has improved, whereas the possibility of a permanent decline in rubber prices on account of increased production has come to be recognized. Discussing the whole question the *Observer* says: "Of course, a great deal depends on the price of rubber keeping up. Should the price, eight years hence or so, fall by any chance to a level leaving little or no profit, we might expect every endeavor to be made to keep on the tea, even to the sacrifice of the rubber. But if, as is expected, the latter continues to be the more profitable of the two, as the trees come to be tapped and attain maturity, the tea is bound to gradually disappear." In this connection may be quoted from the *Tropical Agriculturist*: "Cacao is proving to be perhaps the best crop to grow with rubber in Ceylon. The best average growth we have yet measured is on an estate growing these two products."

PLANTING RESULTS IN MALAYA.

IN an analysis of the rubber plantation product of Federated Malay States for 1907 the *Pinang Gazette* shows that in ten districts 12,978 acres produced 1,684,620 pounds of rubber, or an average of 130 pounds per acre. The average per acre in the various districts varied from 90 to 166 pounds. No account is taken of the ages of the trees.

The Straits Settlements (Bertram) Rubber Co., Limited, report for the business year 1907-08 a yield of just under 40,000 pounds of rubber from 27,257 trees, or about 1½ pounds per tree. The number of trees tapped in 1906-07 was 27,257, and the average yield nearly 1¼ pounds.

ANTWERP AS A RUBBER MARKET.

PLANTATION rubber from the Straits Settlements appears regularly at the monthly sales at Antwerp, but this appears to be the produce mainly of one or two plantations which are owned by Belgian countries. The results obtained at Antwerp have been most satisfactory, with regard both to the prices realized and the low selling expenses as compared with London. An English gentleman in Malaya interested in planting declares that he would prefer Anwerp to London as a market for rubber. It happens, however, that many of the Far Eastern companies are under such relations to English financial houses as practically to obligate the planters to ship their produce to London. Ultimately, however, any such relations will have ceased to exist when the producers of rubber will naturally seek to market which affords the most favorable results. Of course, all the rubber produced out there is not going to London to-day, shipments being made direct to most of the rubber-consuming countries, including the United States.

RUBBER ACREAGE IN THE DUTCH EAST INDIES.

THE total acreage planted to rubber in Java is estimated by a writer in the *Ceylon Observer* at 58,000, the acreage in Sumatra at 25,000, and in Dutch Borneo at 7,000. Probably half the total is planted to *Ficus elastica*, which was set out extensively before the introduction of *Hevea*. An English authority estimates the amount of British capital interested in rubber planting in the Dutch Indies at about £1,750,000.

CONDITIONS IN HAWAII.

A REPORT from Hawaii mentions that not less than $500,000 has been invested in rubber culture in that territory by five companies and a number of individual planters. It is pointed out that none of the companies are depending upon the sale of shares, but that all of the stock is held by a comparatively few persons and the capital paid in. Locally the progress made to date is regarded most favorably, but with the exception of a few trees here and there there is no rubber under cultivation old enough to have become productive. A recent visitor to THE INDIA RUBBER WORLD offices from Ceylon and Malaya, who is largely interested in rubber planting, having occasion to go

to England, journeyed via Hawaii for the purpose of investigating the rubber situation there. In his opinion every condition in Hawaii is favorable to rubber culture, with the single exception of the labor supply. He felt that so long as the present difference exists between wages in Hawaii and Malaya, rubber culture in the former territory will be at a disadvantage.

YAQUI INDIANS FOR GERMAN PLANTATIONS.

THE Tabasco Land and Development Co. are referred to by *The Mexican Herald* as having contracted with the government of Mexico for the labor of 250 Yaqui Indians for service on their estates in the State of Vera Cruz, including the "Oaxaqueña" rubber plantations. The government is reported to have concluded arrangements lately with managers of several rubber and other plantations for Yaqui laborers. The Yaqui (otherwise Cahita) Indians are found in the southwestern coast of Sonora and the northwestern coast of Sinaloa, in the valleys of the Yaqui and neighboring rivers, and hitherto have given much trouble to the government. If they have now been brought under such control, so to render them capable of being employed on plantations, a very considerable difficulty in respect of the labor supply may have been disposed of.

MEXICAN PLANTATION COMPANIES.

SAN ANTONIO Plantation Co. was incorporated August 12, 1908, under the laws of California; capital authorized, $100,000. The directors include F. L. Alexander, St. Helena; J. B. Richardson, Oakland; and J. E. Settles, Berkeley, Cal. The company advise THE INDIA RUBBER WORLD of the purchase of land in the State of Vera Cruz, Mexico, in the river Tesechoacan, about 8 miles from Playa Vicente, on which they purpose planting rubber. Roblito Rubber Plantation Co. [see THE INDIA RUBBER WORLD, July 1, 1908—page 326] state that they expect to have approximately 8,000 pounds of rubber to sell next January from the planted and wild *Castilloa* trees on their estate in Chiapas, Mexico.

RETIREMENT OF MR. HART.

WIDESPREAD regret will be felt at this announcement which appears in the July issue of the *Bulletin of Miscellaneous Information* of the Trinidad botanical department: "Owing to the prospective retirement of the editor of this *Bulletin* at an early date, the present number is probably the last that will be issued under his direction. It has been regularly issued from 1887 to 1908." This note is signed by Mr. John Hinchley Hart, F. L. S., who has edited the *Bulletin* from its inception. The articles in the *Bulletin* have been numbered from the beginning, the last being 1908, and they have related to an exceptionally wide range of topics, being mainly original articles by the editor. He has labored in season and out of season for the development of agriculture in the West Indies, with a degree of success which must be very gratifying to himself and to the people among whom he lives. The last annual report of the Royal Botanic Gardens at Trinidad is the twenty-first of the series, and these reports also have been exclusively the work of Mr. Hart. Mr. Hart's connection with the Trinidad botanical department really extended over a period of 32 years and 4 months. He retires, under the regulations of the service, with the maximum pension. It is understood that he has purchased a house within sight of the botanical gardens, and intends to open an office as an expert adviser in tropical agriculture.

THE city of New York owns, for the use of the various municipal departments, 100 automobiles, which are stated to have cost $260,030. As these machines are in pretty constant use, a current report has it that strict attention is not given to economy in repair bills. The city is a pretty good customer for automobile tires, in addition to buying tires extensively for fire apparatus and other purposes. Recently THE INDIA RUBBER WORLD chronicled the purchase of 26,600 feet of solid rubber tire stock for the fire department from a single factory.

RUBBER INDUSTRY AT SINGAPORE.

THE rubber goods factory at Singapore appears to be one in more than name only. The Nederlandsche Guttapercha Maatschappij (Netherlands Gutta-Percha Co.), formed originally for extracting gutta-percha from leaves under the Ledeboer process, has been mentioned already in these columns as having installed plant for the rubber manufacture, and to make tires. In the last INDIA RUBBER WORLD mention was made of their having secured rights from a firm at Akron, Ohio, for making an American tire in the Far East. More recently the news has come of the issue of a British patent to L. A. van Rijn, manager of the Singapore company, for a rubber "tire" which in point of novelty, at least, compares with anything else in recent patent office gazettes.

In an extended article on the works referred to, the *Straits Times*, of Singapore, says that the company have built up an important business in making solid rubber tires for carriages, motor cars, and jinrikishas. The last named vehicle is the type most largely used in the region of which Singapore is the commercial capital, and the *Times* mentions that tires for these vehicles are now largely sought for. It is stated that shipments are made to India, Siam and even the Philippine islands. The Singapore company are referred to as supplying also various kinds of rubber goods, for local railways and for other purposes.

The plant of the Nederlandsche Guttapercha Maatschappij was inaugurated October 1, 1899, and at one time it did a considerable business in the production of gutta-percha from leaves, but for some time work in that field has been suspended. It was reported, recently, however, that the production of gutta-percha had been resumed, and that shipments for London were about to begin. A short time ago subscription books were opened at Amsterdam for the issue of 250,000 florins [=$100,500] additional capital of the company, in 6 per cent. preferred shares, which was reported at the time to have been taken promptly.

THIS IS MORE THAN A RUBBER TIRE.

Referring to the van Rijn tire, or wheel, mentioned above, the British patent office issues the following abridged specification, in connection with the cut reproduced here: "Disk wheels are made of rubber in one piece, or in several parts vulcanized together, the wheel being thicker at the center than at the periphery. The tread may have nails vulcanized therein; or a tire of leather, wood, metal, and the like may be used; or the tread may be arched inwards or outwards. The rubber disk is attached to the hub by gripping between two flanges being smoothed or roughened."

THE gutta-percha mining fuse used in the United States is still made in Europe for the most part. The domestic manufacture of mining fuse—which, by the way, is on a considerable scale—is confined mainly to the cotton taped quality, the fuse being wrapped spirally with one, two, or three layers of tape, chemically treated for protection against moisture. A correspondent of THE INDIA RUBBER WORLD, who refers to the fuse trade in the United States as being in the hands of a "trust," says the cotton taped fuse nets the domestic manufacturers about 100 per cent. profit.

A PARAGRAPH in the last INDIA RUBBER WORLD mentioned M. P. Fillingham, a consulting and contracting engineer of New York, as having taken on "the manufacture of vulcanizing machinery in general." Of course the "rubber machinery in general" was intended. On another page of this issue occurs an illustration of a new machine brought out by Mr. Fillingham.

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED AUGUST 4, 1908.

NO. 894,880. Rod packing. O. J. Garlock, Palmyra, N. Y., assignor to The Garlock Packing Co.

894,000. Coupling for hose and pipe. W. Pohlman, Middletown, N. Y.

895,111. Vehicle wheel [with hub surrounded by an inflated tube, and having a solid rubber tire]. N. Schenk, St. Louis.

895,284. Boot or shoe [having a welt sole and an upper of canvas and new rubber in one piece]. E. S. Morris and P. J. Mulconroy, assignors to Mulconroy Co., all of Philadelphia.

895,301. Tire. [Solid rubber, within detachable flange.] A. G. Ritchie, San Jacinto, Cal.

Trade Mark.

34,352. Consolidated Packing and Supply Co., New York. The word *Consolidated*, over the representation of a section of packing, all within a triangle. For piston packings, rubber hose, and belting.

ISSUED AUGUST 11, 1908.

895,437. Tire protector. L. Crise, assignor of one-half to C. F. Close, both of Upper Sandusky, Ohio.

895,476. Golf ball. H. C. Lee, Ridgewood, N. J., assignor, by mesne assignments, to The Kempshall Mfg. Co.

895,561. Vehicle wheel [with pneumatic tire]. J. B. Hembree, Piedmont, S. C.

895,560. Machine for removing the gutta-percha covers from rubber-cored golf balls. E. G. Loomis, Norristown, Pa.

895,738. Solid insulating compound. [Comprises castor oil, gum Kauri, and colophony.] J. W. Frank, assignor to Standard Varnish Works, all of New York city.

895,762. Detachable rim for automobile tires. R. E. Jeffery, Piedmont, Cal.

895,770. Washing apparatus for reclaimed rubber. W. A. Koneman, Milwaukee, Wis.

895,821. Tire armor. G. Wilmot, Jr., Detroit, Mich.

895,838. Automatic pump for tires. J. C. Booth, Columbia, Ohio.

895,984. Pneumatic hub. J. Dunchan, Elizabethport, N. J., and R. Dunchan and J. Dunchan, Vienna, Austria.

896,000. Rubber roll or ring. James Bennett Forsyth, Boston.

Trade Mark.

34,290. Pennsylvania Rubber Co., Jeanette, Pa. The word *Greenleaf*. For rubber hose.

ISSUED AUGUST 18, 1908.

896,075. Rubber-soled shoe. R. T. Badgley, New York city.

896,204. Gasket. J. H. Glauber, Cleveland, Ohio.

896,224. Apparatus for molding, vulcanizing, and finishing rubber boots or shoes. J. W. V. Mason, Manchester, England.

896,362. Resilient wheel. S. S. Childs, Bernardsville, N. J.

896,629. Wheel for vehicles. J. De Vere, Blackburn, and J. Whitehead, Clitheroe, England.

896,661. Tire. [Solid rubber, surrounding a tubular arrangement of strips of metal.] W. Potter, Los Angeles, Cal.

896,662. Rubber dam holder and cutter. A. B. Prentis, Brandon, Oreg.

Trade Mark.

34,281. The Johns-Pratt Co., Hartford, Conn. The Words *J. P. Co.* For electrical insulation.

ISSUED AUGUST 25, 1908.

896,715. Forming of filaments out of viscose or similar viscous material. C. A. Ernst, Landsdowne, Pa., assignor to S. W. Pettit, Philadelphia.

896,728. Tread grip for vehicle tires. C. L. Hoff, York, Pa.

896,850. Puncture-closing device. S. Mundey, London, England.

896,894 Cushioned horseshoe. P. Clifford, assignor of one-half to D. J. Corbett, both of Buffalo, N. Y.

896,897. Vehicle wheel. H. Cramer, San Francisco.

896,902. Tire pump. J. A. Dyblie, Joliet, Ill.

896,989, Vulcanizer. J. F. Hardy, assignor to Consolidated Dental Mfg. Co., all of New York City.

897,107. Pneumatic tool. W. H. Keller, Philadelphia, assignor to Chicago Pneumatic Tool Co.

897,151. Pneumatic tire. W. C. Rocheleau and L. T. Rocheleau, Woonsocket, R. I.

897,209. Automobile or vehicle tire. G. Knadler, Cleveland, Ohio.

Trade Mark.

31,502. Stephen Ballord Rubber Co., New York city. The word *Atlas*. For rubber hose, belting, and packing.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each postpaid.]

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the Application, which in the case of those listed below was in 1907.

**Denotes Patents for American Inventions.*

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, AUGUST 6, 1908.]

8,651 (1907). Disc wheel for vehicles, made of rubber in one or more pieces. L. A. van Rijn, Singapore.

8,718 (1907). Detachable flange for tire rims. H. Jones and W. E. Evans, Morristown, South Africa.

8,801 (1907). Pneumatic tire. W. E. and J. B. Rowcliffe, Manchester.

*8,857 (1907). Protective extra cover of rubber for pneumatic tires. W. T. Dorgan, Saginaw, Michigan.

8,869 (1907). Seam for waterproof garments. L. Frankenstein and S. Wiener, Victoria Rubber Works, Manchester.

8,870 (1907). Preparation for filling tire inner tubes. I. Frankenburg & Sons, Ltd., I. Frankenburg, and F. H. Betteridge, Greengate Rubber Works, Salford.

8,911 (1907). Rim for pneumatic tires. R. A. C. Esnault-Pelterie, Boulogne-sur-Seine, France.

8,930 (1907). Tire of solid rubber, composed of blocks arranged in staggered order on the wheel. H. Swales, London, and E. W. Sawyer, Bromley.

8,976 (1907). Powdering waste-rubber. T. Gare, New Brighton, Cheshire.

9,094 (1907). India-rubber substitute. A. G. Inrig, Bexley, Kent.

9,129 (1907). Spring wheel with solid rubber tire. A. Kentrick, Tunbridge Wells, Kent.

9,141 (1907). Revolving heel protector. G. Horton, Liverpool.

9,150 (1907). Protective non-skidding cover of metal pieces for tires. S. Hall, London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, AUGUST 12, 1908.]

9,199 (1907). Toe box of rubber, for boots. J. H. Brown, Northampton.

9,215 (1907). Leather bands for pneumatic tire treads, with clamps for holding the same. W. Weidling, Magdeburg, Germany.

9,230 (1907). Non-skidding metal plates for pneumatic tires. H. G. Bayley, West Croydon.

9,253 (1907). Tire rim with detachable flanges. R. Beresford, Newcastle-under-Lyme.

9,282 (1907). Ties for securing non-skid studs to tire covers. A. H. Alexander, London.

9,397 (1907). Insulating composition and substitue for hard rubber, composed of asbestos, vegetable fiber, and bitumen and the like, treated with carbon bisulphide and other materials. S. de Pont, Levenshulme.

9,503 (1907). Rim for solid rubber tires. E. B. Killen, London.

9,561 (1907). Elastic tire L. Liais, Paris France.

9,577 (1907). Sectional penumatic tire, mounted on corresponding rim segments. J. D. Roots, London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, AUGUST 19, 1908.]

9,615 (1907). Armored leather tread band for pneumatic tires. H. Niemeyer, Essen a/Ruhr, Germany.

*9,634 (1907). Valve for pneumatic tires included wholly within the tire, the opening to the valve being at the periphery of the tire. J. S. Dunn and S. T. and L. C. Langdon, Vincennes, Indiana.

9,644 (1907). Tool for applying tire covers to the rim. L. Fumi, Ferrara, Italy.

9,655 (1907). Elastic tire. J. Slee, Newton-le-Willows, Lancs.

9,658 (1907). Elastic tire. L. Liais, Paris, France.

*9,686 (1907). Winding machine for winding wire on spools in connection with insulating machine. British Thomson-Houston Co., London. (General Electric Co., Schenectady, N. Y.)

9,727 (1907). Puncture-sealing composition for tires. A. Scott. London.

9,839 (1907). Solid rubber tire. W. B. Hartridge, Seaford, Sussex.

9,908 (1907). Double flanged rim, convertable into a rim of the detachable flange type. J. Hodgson, Carlisle.

9,959 (1907). Side slip prevented by a leather cover provided with oblique metal bands carrying studs. F. Pemberton, Derby.

9,676 (1907). Revolving heel pad. G. Bell, Winton, Lancs.

10,008 (1907). Rubber substitute. M. F. Lugo, administratrix of O. Lugo. London.

10,017 (1907). Filling for elastic tires. A. and D. Fagioli, Southampton.

10,026 (1907). Pneumatic tire having air spaces supplemental to the inner tube. E. Jones, Llanelly, and another.

10,057 (1907). Pneumatic tire in sections, each fitted to a separate rim section. R. V. Allen, Bootle.

10,079 (1907). Tire inner tube in sections; the method of forming the ends is applicable to forming the air tubes in one length. C. G. A. Simmonds, London.

10,000 (1907). Tread for tires composed of over-lapping spring plate. J. Young, Glasgow.

10,130 (1907). Spring wheel with solid rubber tread. C. J. Beugnot and C. Humbert, Paris, France.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, AUGUST 26, 1908.]

10,414 (1907). Rubber packing rim between the felloe and the detachable rim flange of a vehicle rim. E. F. Goodyear, Wolverhamton.

*10,421 (1907). Tire composed of alternate elastic and non-elastic sections, vulcanized within an elastic cover. Eleazer Kampshall, London.

*10,422 (1907). Pneumatic tire with metallic sections to prevent slipping. Eleazer Kampshall, London.

10,424 (1907). Arrangement for carrying spare tires for motor cars on lamp brackets in front. H. Fairbrother, London.

*10,502 (1907). Coupling for railway hose. E. Hannold, St. Louis, Missouri.

10,519 (1907). Tire comprising outer and inner metal bands and intermediate springs, with rubber tread for the whole. J. J. Muller, London.

10,521 (1907). Detachable tire carrying rim. S. Masters, Johannesburg, South Africa.

10,550 (1907). Arrangement of chains to prevent skidding of motor cars. A. E. J. Smith, London.

10,563 (1907). Parts for cow-milking machines, G. Dalén and H. von Celsing, trading as Dalén & Celsing, Stockholm, Sweden.

10,564 (1907). Detachable transversely divided tire-carrying rim. P. E. Doolittle, Toronto, Canada.
10,587 (1907). Hose coupling. G. C. Preston, King's Health, Worcestershire.
10,605 (1907). Pneumatic cushion to be used between the bottom and undercarriage of vehicles. J. Byrom, Liverpool.
10,646 (1907). Elastic tire. V. Crépet, La Demi-Lune (Rhone), France.
10,699 (1907). Insulating composition of petroleum pitch and kaolin or like clay. T. Marriott, Kingston-on-Thames.

THE FRENCH REPUBLIC.

Patents issued (with dates of application).

387,491 (Feb. 22, 1908). V. Drollon. Interchangeable treads for tires.
387,556 (Feb. 25). A. Muzick. Asbestos-lined tire cover.
387,572 (Feb. 26). B. C. Swinehart. Rim for elastic tire.
387,598 (Feb. 26). B. C. Swinehart. Elastic tire.
387,599 (Feb. 26). B. C. Swinehart. Rim for elastic tire.
387,712 (March 2). F. Hall. Removable tire rim.
387,510 (Feb. 28). Fabrique Baloise de Chimiques Products. Process for manufacture of a new synthetic rubber.
387,652 (Feb. 28). Fabrique Baloise de Products Chimiques. Process for reclaiming rubber.
387,514 (Feb. 24). G. Engelhardt. Boot heel.
387,538 (May 8, 1907). G. E. Bellais. Eraser.
387,870 (March 6). L. Francois, A. Grellon et Cie. Elastic tire.
387,875 (March 6). J. A. Harrison and G. Hookam. Protective tire tread.
387,912 (March 7), Patay et Cie. Artificial caoutchouc.
387,913 (March 7). E. C. Bergmiller. Protective tire tread.
388,125 (March 12). Houdaille and Trion. Elastic tire.
388,131 (March 12). J. Party. Boot heel.
388,265 (March 17). L. Babert. Pneumatic tire of leather.
388,248 (March 17). G. Austerweill. Regeneration and devulcanizing of rubber.
388,302 (March 19). L. Pérard. Boot heel.
388,387 (March 2). A. C. Mauselon. Pneumatic tire tread.
388,394 (March 9). G. E. Dret. Rim for pneumatic tire.
388,428 (March 21). Michelin et Cie. Rim for pneumatic tire.
388,492 (March 24). F. G. Wiechmann. Treatment of casein to form a rubber substitute.
388,662 (March 28, 1908). J. Rees, Tire inner tube.
388,687 (March 30). J. Hoelt. Pneumatic tire without inner tube.
388,706 (March 30). L. M. Thomas. Leather armored pneumatic tire.

[NOTE.—Printed copies of specifications of French patents may be obtained from R. Robert, Ingenieur-Conseil, 16 avenue de Villiers, Paris, at 50 cents each, postpaid.]

INDIA-RUBBER INTERESTS IN EUROPE.

GREAT BRITAIN.

AT the last annual meeting of the Leyland and Birmingham Rubber Co., Limited (Leyland, August 15), Mr. James E. Baxter, the chairman, informed the shareholders that the year's trading had been the best in the history of the company. He reviewed the history of rubber prices as affecting the manufacture of rubber goods, but personally he did not anticipate a repetition of the extreme fluctuation in the prices of crude rubber such as they had experienced during the past few years, particularly when they considered the rapid strides which had been made in the planting of cultivated rubber. The price would necessarily settle itself down to a regular one, which would handsomely pay the planter, and which, at the same time, would enable the manufacturer to produce at a fair profit, and also to largely extend his business.

At the last annual meeting of Dermatine Co., Limited (London, August 25), the report to shareholders stated that the business of the company continued to make favorable progress. It was resolved to declare a dividend of 5 per cent. on the ordinary shares, payable on September 14; the preference dividend of 5 per cent. was paid July 4, the total amounting to £1085 8*s.* 6*d.* [=$6,985.49].

The death is reported in London of Mr. Max Hecht, who for a number of years was a partner in Hecht, Levis & Kahn, from which firm he retired ten years ago, after having been an important factor in the trade. He was in his sixty-fourth year.

Equatorial Rubber and Mahogany Concessions, Limited, registered in London April 29, 1908, with £100,000 [=$486,650] capital, to deal with rubber, gold, and timber in British West Africa. Offices: 31 Lombard street, E. C., London.

RUSSIA.

THE General Electric Co., of Russia, realized during the last business year a net profit of 511,470 rubles [=$263,407], as against 439,050 rubles for the previous year. Dividend, 4 per cent., against 3 per cent. last year.

GERMANY.

A NEW company has been registered at Berlin, under the style of Prowodnik Motor Pneumatic Gesellschaft m. b. H., for the sale of the tires made by the "Prowodnik" company at Riga, Russia. The capital is 20,000 marks [=$4,764.20] and Georg Philipp, of Gross Lichterfelde, is manager.

The Continental Caoutchouc-und Guttapercha Co. (Hanover) are reported as subscribers to the extent of 15,000 marks to the fund for the benefit of Count Zeppelin, whose airship met a disastrous end recently.

NON-DECOMPOSABLE CRUDE RUBBER.

THE researches into the properties of crude rubber made during some years past by Mr. George E. Heyl-Dia have yielded some results of much interest from a scientific standpoint and of practical advantage to the industry. Recently, and after a trip to rubber regions in South America, he has announced the successful outcome of a new series of experiments, based upon his observation of the treatment in the forest of *Hevea* rubber. Mr. Heyl-Dia calls attention to the fact that the rubber known commercially as "Cametá" is the product of precisely the same quality of latex as "fine Pará," though these rubbers are quite unlike for factory purposes. The difference, he asserts, is due wholly to the varying treatment received by the latex. Based upon this principle Mr. Heyl-Dia's work has carried him to a point where he contends that, by a certain treatment, any rubbers may be improved, and that Africans and even guayule may be made practically as good as Parás.

Some time before Mr. Heyl-Dia had succeeded in developing, as he asserted, the rubber molecule from balata and turpentine, and later he introduced to the trade a specially treated guayule rubber, of which a considerable amount has been sold. Now, as a further step, he has brought out what he terms "non-decomposable" rubber, the result of treating ordinary crude rubbers. The rubber so treated, as we understand it, is not mixed with other gums or chemicals, except that the preserving process produces at the same time greater strength. The destruction of albuminous matter and proteins removes the cause of deterioration in all rubber goods made from other crude rubbers than fine Pará.

FRUIT OF "PALO AMARILLO."

[A rubber producing tree in Mexico, illustrated and described in THE INDIA RUBBER WORLD, February 1, 1906 (page 148) and October 1, 1907 (page 9). The tree botanically is designated *Euphorbia fulva.*]

THE directors of the Canadian General Electric Co., Limited, declared the regular dividend of 1¾ per cent. on the common shares, and the regular semi-annual dividend of 3½ per cent., both payable on October 1.

New Rubber Factory Appliances.

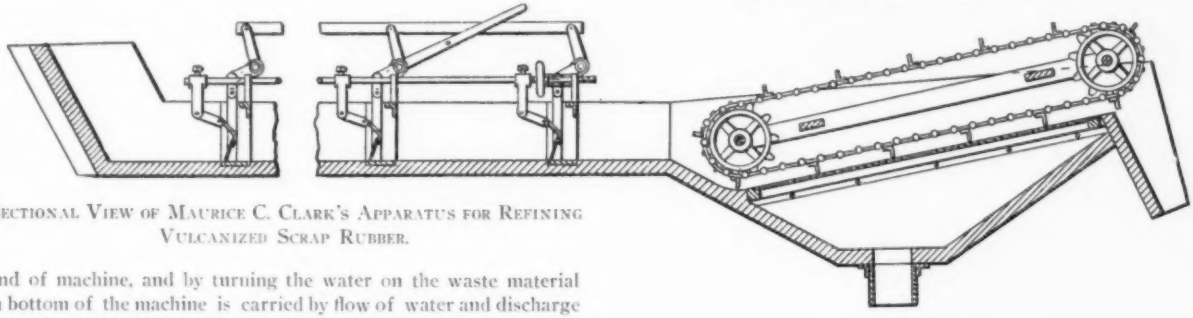
APPARATUS FOR REFINING RUBBER.

A RECENT patent relates to an improvement in mechanism for cleaning and refining vulcanized scrap rubber, such as footwear and tires, which have been ground up preparatory to devulcanizing.

The machine—of which a sectional side elevation is shown in a drawing on this page—consists of a long, narrow trough, having at regular intervals gates or dams. The trough is set at a slight angle and is supplied with water which, together with the ground up stock to be refined, is fed into its upper end, from where it passes through the several compartments and over the successive gates to the lower end of trough, where the stock is delivered over a screen to a devulcanizer car, while the water passes through a screen to the sewer or tank as desired.

While the material is passing over the gates and to the screen the refuse, such as sand, gravel, or particles of metal substances, will settle by gravity into the bottom of the compartment formed by the gates. These gates can be adjusted separately to any angle desired, or can be adjusted all together by means of a hand-wheel on a rod connected to all the gates.

When a batch of stock has been run through the machine and it is desired to remove the refuse material which has settled by specific gravity to the bottom of compartments, the gates can all be raised at once by means of a lever, which, by pressing down, raises all the gates simultaneously up from the bottom of machine; the conveyor and screen are raised up at the discharge end of machine, and by turning the water on the waste material in bottom of the machine is carried by flow of water and discharge through the pipe in the bottom of the discharge end of machine. The inventor of this apparatus is Mr. Maurice C. Clark, of Providence, Rhode Island, to whom the rubber industry is indebted already for so many new factory appliances. It is protected by United States patent No. 890,497.

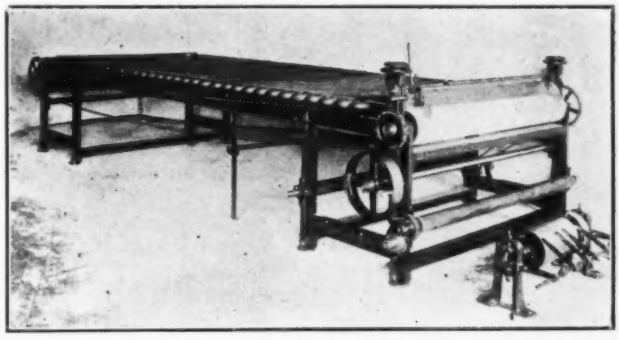


SECTIONAL VIEW OF MAURICE C. CLARK'S APPARATUS FOR REFINING VULCANIZED SCRAP RUBBER.

Patent No. 890,498, also issued to Mr. Clark, relates to an apparatus for automatically handling and conveying rubber stock to be reclaimed through the successive operations from cracking up to the devulcanizing car.

EDRED W. CLARK'S STRAINER FIXTURE.

THREE cuts on this page relate to a new strainer fixture for sieving "shoddy" or reclaimed rubber. This fixture is threaded to screw into the end of the machine same as the head, and by unscrewing the four tail nuts the gate can be opened to change or clean the plate. The plates are steel, ½-inch thick, and 3/16-inch holes drilled in a 7-inch circle. In front of this plate is a wire screen 8½ inches square, of any size mesh desired, and as fast as it fills it can be cleaned or replaced. [Edred W. Clark, Hartford, Connecticut.]

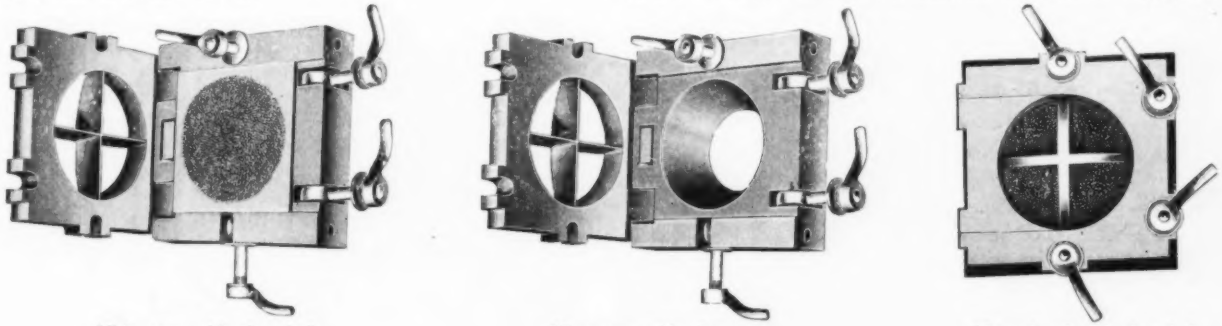


A NEW RUBBER SPREADING MACHINE.

RUBBER SPREADING MACHINE.

THE new spreading machine shown here is designed for spreading a thin coating of rubber on cloth. The cloth to be coated is wound up on a wooden roll, placed in bearings on the front of the machine, and passed over an accurately ground rubber roll against which the spreading is done.

The spreading knife is mounted in housings at its ends, and is raised or lowered to allow for different thicknesses. Adjustable



[Gate open with plate in.] [Gate open with plate out.] [Gate closed with plate in.]

CLARK'S STRAINER FIXTURE FOR SIEVING SHODDY.

end plates are provided to accommodate various widths of cloth An arrangement is made for spraying the cloth with a number of small jets of steam just back of the spreading knife to prevent the frictional electricity from igniting the naphtha solvent.

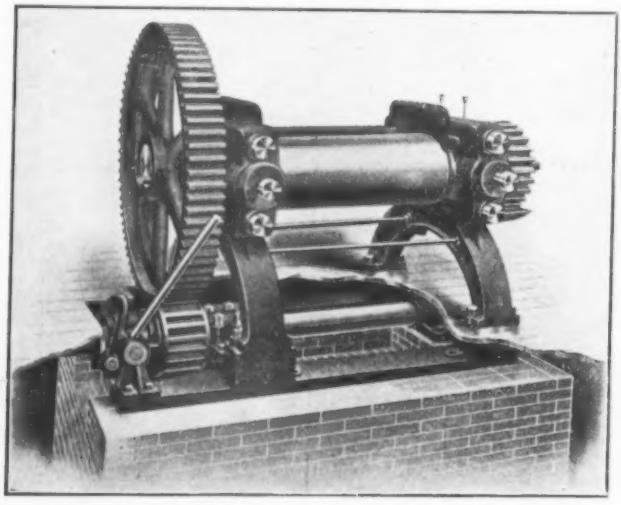
After being coated, the cloth passes over a large surface of steam coils and around a drum at the extreme end of the machine, and is wound up on a roll placed underneath. The machine is of sufficient length to allow the cloth ample time to dry in passing over the steam coils.

A countershaft is furnished having 8"x6" T. & L. pulleys arranged for straight and crossed belts in such a way that the machine may be reversed for running the cloth back.

The T. & L. pulleys should run 175 revolutions per minute. This gives a speed of 20 feet per minute to the cloth. The width of the machine, between housings, is 62 inches. The floor space is 6x17 feet. Net weight, 3,000 pounds. [New England Butt Co., Providence, Rhode Island.]

A NEW RUBBER MIXER.

The rubber grinder and mixer illustrated herewith is built in sizes from 10 inches to 20 inches, diameter of rolls, and of any length desired. It is made with cap on end of frame, as shown



STANDARD RUBBER GRINDER AND MIXER.

[Made for M. P. Fillingham by the Taylor Engineering Co., Allentown, Pennsylvania.]

in the cut, held together with through bolts, or is made with cap on top. The frames and caps are of cast iron of ample strength and weight, the journal boxes are brass lined and fitted with oil pipes, the brass liners reach around under the necks of rolls, so that when the mill is running idle the weight of the rolls are on the liners, making the journal boxes less liable to heat up. The adjusting screws are of steel working in bronze nuts. Each machine is furnished complete as shown on cut, including foundation bolts and plates. If desired these machines can be fitted with safety device. These mills are designed by M. P. Fillingham and built by the Taylor Engineering Co. (Allentown, Pennsylvania).

RUBBER HEELS BAD FOR THIEVES.

AFTER the robbery of a railway station near Toronto the detection of the thief, says the Toronto *Globe*, resulted from comparing the imprints of rubber heels outside the window of the station with those worn by a young man found in the vicinity. Hitherto the wearing of rubber soles and heels has been considered as facilitating the operations of gentlemen of thieving propensities, but if the detectives are going to study trade marks on such goods it may be better for the burglars to depend on their leather shoes, which make a less definite impress on the soil.

The home of Mark Twain (Samuel L. Clemens), the author, in Fairfield county, Connecticut, was entered one night recently by burglars, whose arrest resulted, as the newspaper reports agree, through their being traced by the imprints in a dusty road of the rubber heels worn by one of them. The local police went over the road and found the prints of a large foot and a smaller one. The big man wore rubber heels "with six little cleat marks." The steps led to a railway station, and the police boarded the same train with two men, an examination of whose shoes led to their arrest for the burglary of Twain's home.

EXHIBITION OF FIRE APPARATUS.

THE rubber trade was well represented at the exhibition of fire apparatus and accessories held in connection with the thirty-sixth annual convention of the International Association of Fire Engineers, at Columbus, Ohio, commencing on August 25—too late for a report in the succeeding issue of this journal. This association is beginning to be more widely recognized, not only as of a most helpful character to the fire department officials in the various cities in affording an opportunity for an interchange of views and experiences, but also for the study of new and improved equipment. The recognition of this latter feature is shown by the fact that during one day of each yearly convention no formal sessions are held, the delegates devoting their time to a series of tests of the apparatus on exhibition. The leading manufacturers of fire hose were fully represented during the week, and also the makers of hose couplings and the like, hose washers, and waterproof clothing. A new feature which has developed at these exhibitions in late years is that of rubber tires for fire apparatus, and several of the rubber companies made displays in this line.

On the opening day of the convention the public presentation of a diamond studded badge of the association was made in behalf of the fire chiefs present to Mr. Isaac B. Markey, of the Eureka Fire Hose Manufacturing Co. (New York), who by his constant attendance upon the meetings of the association from the beginning had become widely known to the members, and a prominent figure at the conventions. Mr. Markey has failed to be present only at one meeting—in 1904—and that was on account of illness.

JAPAN AND THE RUBBER INDUSTRY.

THE Canadian department of trade and commerce publishes a report by the Canadian trade commissioner of Yokohama the effect that a representative of a French syndicate is negotiating to bring the rubber factories in Japan into co-operation with certain large manufacturing concerns in Great Britain and France. The intention is to supply the local markets, and eventually secure the export business to Corea, China, India, Siam, and the Straits Settlements. At present, the commissioner states, there are six companies engaged in the rubber industry in Japan. So far, the quality of rubber goods manufactured by these factories has not been first-class; but, nevertheless, the product is replacing the imported article. The local product has not altogether met with the approval of the public, on account of its weakness and inability to stand wear. One or two of the establishments, however, have made changes in the basis of the material from which their goods are manufactured, charging a considerably increased price, and have placed articles on the market quite equal to the best of the kind that have been imported. —*The Financial News* (*London*).

THE B. F. Goodrich Co. (Akron, Ohio) will exhibit their tires at the eleventh annual Paris automobile exhibition, at the Grand Palais, which opens in November.

THE RUBBER TRADE AT AKRON.

BY A RESIDENT CORRESPONDENT.

A GENERAL tendency is apparent among the rubber manufacturers in Akron to expand their producing facilities. There is hardly a firm in this industry in the city that is not planning extensive building operations. If the program mapped out by each concern is carried to completion, the production of rubber goods in Akron should be increased more than 25 per cent., by a conservative estimate. The sudden expansion is noted, especially among the companies making automobile tires, and it is undoubtedly due to the increased demand for this motor accessory that the building has been brought about.

* * *

THE B. F. Goodrich Co., within the last month, have started on the construction of a new factory building at the front of their plant, which will be six stories high and will measure 102 x 95 feet. It will be used for the automobile tire manufacture exclusively, and is to be completed by the middle of December. Plans are also being drawn for a still larger factory building, to be constructed at the rear of the plant. It will be 220 x 60 feet and six stories high. The rapid increase in the size of the factory building adjoining their present plant on September will be built to the power house, one 50 x 82 feet, and the other 40 x 65 feet. All of these structures are of reënforced concrete and fireproof throughout.

* * *

THE Firestone Tire and Rubber Co., by reason of a recent decision of the stockholders to increase their manufacturing facilities, have begun the construction of an addition to the plant, 125 x 40 feet. The new building will be four stories high and will be used for the manufacture of tires. About 100 more men will be employed. It will enable the company to increase the output by 25 per cent. President H. S. Firestone says it is expected to have the addition ready for occupancy in 60 days. The company are also building an addition to the office, 20 x 50 feet.

* * *

THE Goodyear Tire and Rubber Co. broke ground for a new factory building adjoining their present plant on September 21. It will be five stories high, 80 x 300 feet. The addition was made necessary by the increase of business. It will mean the employment of 300 more men. It is expected to have the building completed by January 1.

* * *

A GENERAL decrease of consumers' prices for automobile tires went into effect among the Akron manufacturers on September 1. This reduction varied from 15 to 25 per cent. among different companies. The step was taken in a measure to overcome the tendency among retail dealers to cut prices. According to the new scale the consumers' listed price is very much lower, while the profit for the dealer is cut down. The manufacturers are enabled to reduce prices for several reasons: First, because the price of crude rubber is lower than formerly; second, because a system of standardization of tires has become almost perfected. A few years ago, the number of sizes a manufacturer had to be ready to make was almost unlimited. Now standard sizes have been adopted by automobile manufacturers, so that the total number is reduced almost to 100. This greatly cheapens and simplifies manufacture; third, facilities of manufacturing have been greatly improved. Not only have new methods been discovered and applied but the increased demand has correspondingly increased the output, reducing the cost of production per piece.

* * *

RUBBER companies in Akron report unexpectedly large sales in the better grade of bicycle tires during the season just closing. This fact is taken as an indication that the bicycle is regaining a measure of its former popularity. In this connection, it is a piece of news that the bureau of publicity for the sport of bicycling, established in Toledo by the Cycle Parts and Accessories Association, was discontinued on September 1. The reason was the fact that the bicycle manufacturers withdrew their share of the support of the bureau.

* * *

AFTER a year's experimenting with a new type of solid tire with a hard rubber base, the Goodyear Tire and Rubber Co. are preparing to put this product on the market. The Goodyear company claim to be the first rubber company in America to succeed in vulcanizing soft and hard rubber together for this purpose. The new tire is for motor trucks and is designed after a tire in use in Europe for some time. The manufacturers' principal claim for superiority of the new tire is that the hard rubber base will last longer than the ordinary fastening and will enable the user to wear his tire completely out. Mr. P. W. Litchfield, superintendent of the Goodyear factory, is credited with the invention.

* * *

OFFICIALS of the Goodrich and Diamond Rubber companies united in entertaining the delegates of the Society of American Automobile Engineers, who visited the plants of those companies on Saturday, September 19. They spent the morning going through the factories and took lunch at the Portage Country Club. The visit was made at the close of the quarterly meeting held in Cleveland.

* * *

MR. J. A. SWINEHART, of the Swinehart Clincher, Tire & Rubber Co., reports a large business for his company. A night force has been put on at the factory to increase the output. Several pieces of new machinery have also been installed. The New York branch of the Swinehart company was moved recently to No. 875 Seventh avenue, where a building has been leased for ten years.

* * *

THE local manufacturers are preparing to be extensively represented at the annual carriage shows, to be held in New York (October 5-12), and in Chicago (October 12-19). They will take an especial interest in these shows this year on account of the fact that an automobile department will be introduced for the first time. The Diamond Rubber Co. will show tires for high wheeled automobiles, which are growing in popularity, especially in rural communities.

Mr. E. P. Weber, has been transferred from the position of salesman in the Philadelphia branch of the Diamond Rubber Co. to the management of the Boston branch to succeed W. P. Cronin, who becomes special salesman of the company, traveling out of the home office.

The annual conference of branch managers of the Diamond Rubber Co. was held in Akron, on September 14-17. Among those present was C. E. Matthewson, manager of the Pacific coast branch, San Francisco. There were altogether 15 men in the conference. All reported an improvement in business conditions, and trade is active in tires and regular lines.

The B. F. Goodrich Co. opened a new branch in Kansas City during the latter part of September, at No. 1728 Grand avenue.

The Diamond Rubber company has coined a new phrase to describe one of their treads—"the well-balanced tire." As described by the company, it is a tire in which the wear is so distributed that the mileage possibilities of the principal parts approach the point where they balance each other. The argument is that the ideal tire should wear so long that before retreading should become necessary, the tie would be past further service through old age alone.

In the automobile endurance contest held out of Toledo early in September, the Goodyear Tire and Rubber Co. furnished gratis to the contestants the Goodyear air bottles. The drivers at the end of the tour joined in extending a vote of thanks to the company.

THE RUBBER TRADE AT SAN FRANCISCO.

BY A RESIDENT CORRESPONDENT.

RESULTS that are being obtained by the rubber goods dealers in San Francisco indicate that active times are approaching, if indeed they are not now at hand. The change has been coming on so gradually that it is difficult to say just when the dull times began to wear away, and the more active times are of such recent date that dealers still hesitate somewhat before they will commit themselves to the statement that they are now doing a good business. And yet from nearly all of the local houses comes the report that sales are forthcoming to a degree that is highly encouraging. Almost anyone will say that things are in better shape than they were in July. It had been thought by some that the feeling of quiet times, when it spread to the interior of the State, would have a lasting effect on the country districts, but it seems otherwise. There was but a very short period during which the country merchants perceptibly curtailed their active orders, and at this time there is a greater feeling of prosperity throughout the country districts than locally in San Francisco.

Mr. Crandley, of the Plant Rubber and Supply Co., states that business keeps up to a very fair standard, with a slight tendency to improvement, although he does not look for a greatly improved business until spring.

Mr. W. D. Jennings, representing the H. B. Sherman Manufacturing Co. (Battle Creek, Michigan), was in San Francisco during the latter part of September.

The Bowers Rubber Works, reports the manager, Mr. Chase, are getting ready for next season's business. The factory is running full, all of the travelers are out, and orders are coming in satisfactorily.

Mr. Charles Taber, manager of the new fire apparatus and supply department of the Gorham Rubber Co., states that his department is coming rapidly to the front, doing practically second to the largest business in these lines in this city. There has been a great deal of hose sold here recently, and Mr. Taber is working into this business. Their special hose brands, made for them by the Goodrich people, are coming to the front with the aid of the new department.

Mr. Kirkpatrick, the B. F. Goodrich Co.'s Pacific coast representative, has returned from the convention of tire dealers in the East, and is now at his offices at No. 52 Fremont street.

Mr. Robert Thomson, who was manager for The Fisk Rubber Co. at No. 1036 Golden Gate avenue, is now with the Michel Tire Co. The present manager in San Francisco of the Fisk company is Mr. Maurice Gibson, who was formerly with the Sterling Rubber Co. of this city.

Mr. W. J. Gorham, of the Gorham Rubber Co., returned from his Eastern trip, went up immediately to the firm's Seattle branch, and after a short stay there to see that everything was in good order, returned to San Francisco. Mr. Heckman, the sales-manager of the firm, is still in the East. Mr. Parish, now in Japan, sends the report that business there is very quiet. Mr. Sargeant, manager in San Francisco, states that business has within the last thirty days taken a favorable turn on this coast, and is looking considerably better. The employés of the firm are taking an active interest in athletics, and have a baseball team which is ready to compete with teams formed by any other company.

Following the acquisition by Dodge Brothers, proprietors of the Western Belting and Hose Co., of the "Manhattan" lines formerly controlled by the Pacific Hardware and Steel Co., it is now rumored that the big hardware concern known as Dunham, Carrigan & Hayden are about to give up the "Peerless" lines, and that the Pacific Coast Rubber Co. will take the line. It seems that the hardware houses are gradually losing their rubber lines.

Mr. L. L. Torrey, manager of the Pennsylvania Rubber Co.'s branch, says: "Business is good and collections are fairly good, and improving. We are, in fact, very busy and expect to be more so. These are facts, too, because conditions are very greatly improved. We have no fault to find with anything in the world."

The cut in the price of tires has caused considerable comment, although on the whole the comment is probably favorable. The cut has been felt by the dealers, but others prophesy that tires will be purchased in sufficient quantities to make up whatever the dealers may lose by the cut in price.

Mr. Perkins, of the Sterling Rubber Co., notes great improvement during the past month, especially in the sundries line. The druggists are now beginning to purchase freely and conditions in that department are near to normal. They are paying up very much better, too, than they did for a while.

Messrs. Kanzee and Ralph, of the Phœnix Rubber Co., have been somewhat slow about getting established in their new store and factory, but they are having everything put into ship-shape condition so that there will be no loose ends to pick up after they have become settled.

Mr. Joseph Selby, representative of the Boston Woven Hose and Rubber Co., now in the interior on one of his regular trips, sends in reports which indicate that the country districts are in almost normal condition again.

A WEED EATING TROPICAL CREEPER.

[FROM THE WESTMINSTER GAZETTE, LONDON.]

IT appears that at last an antidote has been found to the noxious weeds which are so frequently the death of certain forms of plant and vegetable life in the East. Specimens of this wonderful "find" have been forwarded to the authorities at Kew Gardens. This plant is a blue flowering creeper botanically known as the *Commelina dudiflora linnca*, but called "rumput gremah" by the natives of Malayasia and "ge-war-en" by the Javanese. Although the report made at Kew goes to show that this creeper is common throughout the Middle East, it would seem that the managers of estates and plantations have not known of its peculiarly welcome properties until very recently and accidentally.

The prolific weed known as "lalang" is the great enemy to rubber growth. It was the accident of observing that where the blue flowered creeper came in contact with the lalang the latter became much less injurious that induced a planter to send specimens to Kew. It seems that at first one begins to notice that the weeds are becoming less prolific where the creeper is growing among them. This improvement steadily increases as times goes on and it has been found that under the influence of this antidote lalang which was formerly four or five feet in height has been reduced to only one or two feet when it starts to flower.

But the joyful discovery having been made that here was an undoubted setback to the weedy growth that chokes young rubber and is the bane of the planter's life, the question arose: Would the antidote itself exercise a prejudicial effect on the rubber? Therefore the specimens were duly submitted to Kew, and, as stated to our representative, the new creeper is "unlikely to have any harmful effect on young rubber trees." Planters all over the East may therefore take heart of grace and also take this new "medicine."

In appearance the blue flowered *Commelina nudiflora* is rather pretty, and like the weeds which it first checks and then kills it grows with astonishing rapidity. The particular estate whose manager made the discovery and acted upon it so promptly and satisfactorily is the Langkon estate, in British North Borneo. The amount of rubber produced annually in the Straits Settlements is, of course, very large, and the results of the discovery and its successful application in a practical way are likely to be far reaching.

THE PROPERTIES OF "VULCOLE."

AN article headed "Vulcole" in the last India Rubber World related to a new assistant for rubber compounds that had recently come upon the market. The company having its sale in charge wrote under date of September 25:

"At this writing some 40 rubber manufacturers, and among them the largest and most representative in the United States and Canada, have ordered 'Vulcole,' and are now engaged in experimenting with it. Besides those ordering we have had letters from some 70 more asking for further information, and believing that as many more as have written are interested, we take the liberty of writing you covering all of the questions we have received.

"'Vulcole' is a paste about the consistency of ice-cream and in the A and B grades a cream white in color, C grade being jet black. A grade is made for all classes of rubber goods, black, red, white or blue that the manufacturers want to bloom. B grade will absolutely prevent blooming and is suitable for all compounds and cures where non-blooming results are desired. C grade is put up exclusively for rubber boot and shoe work. It will not only absolutely prevent blooming in rubber boot-legs, but is possible to obtain a rubber with a jet black, gun-metal finish, a finish we believe will be in great demand for rubbers worn in large cities where the fashionable trade object to wearing rubbers that look when new as if the wearer had just left the varnish shop.

"In the majority of compounds from 3 to 5 per cent. of sulphur is at present used, but with 'Vulcole' it is possible to increase this amount to 75 per cent. of the weight of the crude rubber, which increases the sulphur percentage 1600 to 5000 times.

"The majority of letters ask what is the special advantage of using sulphur as a compounding ingredient. In answer to this we would say that in considering the value of a rubber compound its price, together with quality and bulk, must be taken into account. We have seen compounds costing 75 cents a pound that are really cheaper than ones costing but 50 cents a pound, for the reason that from a pound of the one costing 75 cents, so many more articles of the same size could be made out of a pound of stock that each article costs less than when made out of the 50 cent compound.

"Sulphur is the lightest of the mineral pigments generally used by a rubber manufacturer, its gravity being 2. It is also low in price and does not affect the elasticity when mixed in a compound together with 'Vulcole.' It does not affect the strength as would a substitute, to say nothing of the great saving in the cost in favor of the former. Samples which we have that were made 7 months ago show no oxidation.

"Contrary to what might be expected from using so large a percentage of sulphur, equaling 75 per cent. of the weight of the crude rubber and but one ounce of 'Vulcole A' to a pound of the former, it does not bloom excessively. 'Vulcole,' in enabling so large a percentage of sulphur to be compounded into the goods, greatly reduces the time necessary to vulcanize, increasing two or threefold the output of a specific number of presses and molds, to say nothing of the saving in cost of labor on the press. We have cured without soap or soapstone the most delicate mold work.

"We would impress the fact that by the aid of 'Vulcole' it is possible to make up a compound containing a fair proportion of crude rubber, adding all of the mineral pigments that are usually used, besides from 25 to 75 per cent. of the weight of the raw rubber in sulphur without affecting the quality of the finished product, to say nothing that the sulphur will lighten the gravity, and increase the bulk of the compound.

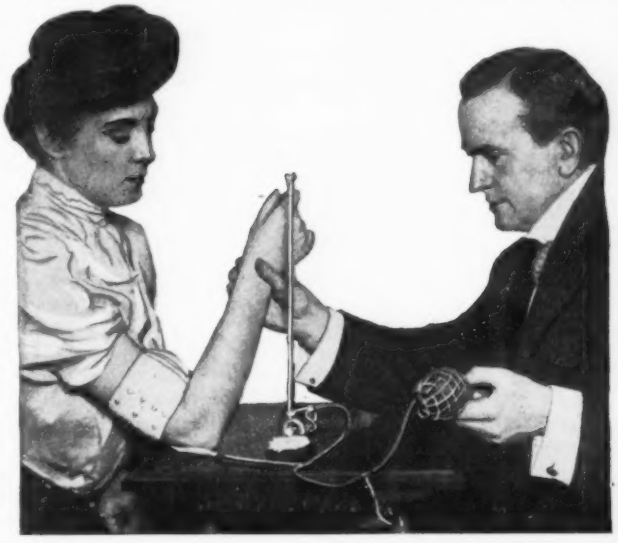
"While the initial cost of 'Vulcole' is approximately 7 cents an ounce, the saving it effects will enable a manufacturer who uses it to cheapen the cost of the compound without reducing the quality. It actually effects a saving of from 15 to 33⅓ per cent., according to the percentage of sulphur used, to say nothing of the fact that it absolutely prevents blooming, increases two and threefold the output and saves altogether the time lost in cleaning and scraping the molds between heats."

TESTING THE HEART WITH RUBBER.

THE sphygmomanometer is a pulse pressure gauge, used by physicians for measuring the pressure of blood in the arteries, in the treatment of circulatory disturbances or heart disease. Writing on its use, in the New York *American*, Dr. Samuel G. Tracy, of New York, says:

"An artery of the body can be compared with a flexible rubber tube used for a drop light and filled with illuminating gas. If the tube is slightly damaged or obstructed, an overpressure of gas may produce a fissure in the inner wall of the tube, or the tube may burst. However, if one moderates the gas pressure, then the tube holds good. So in the human arteries there is danger from excessive pressure.

"In testing the pulse at the wrist, experienced physicians become familiar with the feeling of the quality of the artery, and



The Sphygmomanometer in Use.
[Measuring a patient's arterial tension.]

can often tell if this artery has become hardened and its caliber correspondingly smaller. To make sure, however, the sphygmomanometer makes the test certain.

"This instrument consists of a cut-glass bulb and upright tube containing mercury. One side of the glass bulb is connected with a rubber tube ending in a rubber hand bulb. The other side is connected with an inflatable rubber band or tire, which, attached to the arm over the radial artery, when the hand bulb is compressed, drives the mercury up in the glass tube.

"If the column of mercury indicates 114 to 125 millimeters in the female adult and 125 to 135 in the male adult, a normal blood pressure obtains. If lower than this the vital energy must be improved, which is quite easy to do. If, on the other hand, the column of mercury indicates increased pressure, then arterio sclerosis, with hardening of the arteries, is probably present, and your condition demands the advice of a physician."

As will be seen from the illustration (which appears here through the courtesy of the New York *American*), this important device owes much to rubber, which forms such a considerable part of it.

STATE OF THE TIRE TRADE.

THE new prices for automobile tires announced September 1 show a material reduction in the cost to consumers. These reductions range from 25 to 40 per cent., the large figure referring as a rule to the lighter tires, the smallest reductions being on the middle weight tires—the kind used on the ordinary four cylinder touring cars and runabouts. There being no trade combination among the tire makers there are, of course, offered in the various catalogues varieties in price and in reductions. Some have cut a trifle more on one line than upon others, but the general ratio is substantially fixed. It will average 33 per cent., considering all makers and all sizes. The same is true with regard to casings and inner tubes. The reductions on each are about the same ratio.

The primary reason for this marked change in the cost of tires, according to manufacturers, is the lower price of rubber. The reduction in the cost of tires has not more than kept pace with the reduction in rubber. There are other reasons, however, which contribute to the lowering of the price scale. The manufacture of automobile tires is not so old, but that constant improvements are being made in machinery and in factory methods. Every year adds something in the way of machinery that cheapens and improves the product, and every year's experience adds to the store of knowledge and to the proficiency of the operatives. Then again, the growth of the industry, the new manufacturers in the field and the sharpness of competition are all tending to narrow the margin between the factory and the consumer. The demand is now so steady and so strong that it costs less to sell a tire than ever before; just as it costs less to make a tire than ever before. The consumer is sharing these benefits with the maker.

The constant improvement in the quality of the American tire has brought its reward in the increased confidence of the automobile enthusiasts. Not so very long ago, many of those to whom expense was no consideration, were persistent users of foreign tires, because they believed them superior to anything made in America. This sentiment is rapidly changing. The American product is generally regarded as being as serviceable in every respect as any tires made abroad. Many automobilists prefer it. The growth of this sentiment has added to the business and will add more every year. In almost every case the user of foreign tires who is induced to try the home-made article becomes a convert.

The volume of business, in terms of money, is increased by the steady change that has come over the character of the demand. The automobile business and tire business being practically in their infancy it has required a considerable amount of experimenting and considerable elimination to bring them to standard. Not so very long ago a count of the automobiles that passed you in or near New York would have disclosed the fact that fully 50 per cent. of them were machines weighing less than 1500 pounds. These as a rule used very light tires on 28 inch or even smaller wheels. A similar observation today would not show one car in ten as light as 1500 pounds, and more than 50 per cent. would range between 2200 and 3500 pounds. The wheel diameters are from 32 inches up and the tire diameters from 4 to 5½ inches. The difference in the amount of money spent for tires is enormous. Furthermore, even on the same weight cars there is a rapidly developing tendency to increase the weight of the tire. Automobilists see more and more clearly that there is no economy in cheap tires. Not only the pleasure of the sport but the lives of those who ride make dependable tires a necessity.

The tendency, therefore, for the coming season is to have a car "over tired" rather than to run the risk of annoying breakdowns and dangerous accidents. Owners of cars of from 2200 to 3,000 pounds, who formerly thought 3½ inch tires ample for every requirement are now buying 4 and 5 inch diameters. The buyer of a new car always insists on the heaviest possible tire; the sellers of cars have recognized this demand in offering their wares and in preparing their catalogues. This increase in demand for the 4 and 4½ inch tires is the chief reason why its ratio of price reduction is less than on either smaller or larger sizes. In these sizes the factories have their hands full supplying the demand.

All of the makers now offer a variety of treads, and few motorists use the tire of circular section, as formerly. This is true with regard to the driving wheels especially. On these the general usage is some variety of non-skid or non-slip tread that adds thickness and weight to the tire and adds to its cost. All varieties of these special treads are higher priced than the plain tread, and their many varieties make good selling arguments. In this line, however, there are few novelties offered for the season. The forms that have been approved in the past have practically become standard, and are turned out with slight variations by all the factories. Their popularity grows as automobilists become more experienced and they undoubtedly add to safety and to durability.

"ARTIFICIAL RUBBER."

[FROM THE LONDON "MORNING LEADER," SEPTEMBER 11.]

THERE is no panic in the india-rubber trade on account of the alleged synthetical manufacture of rubber at Burton-on-Trent [mentioned on page 16 of this issue]—there have been too many of such reports before. Mr. Henry C. Pearson, editor of THE INDIA RUBBER WORLD, New York, told a representative that he had known twenty or thirty such inventions during the past few years, and still the trade was unaffected.

Mr. Pearson was at Olympia surveying the preparations for the forthcoming International Rubber and Allied Trades Exhibition, for which he has especially crossed the water, and at which he will give a series of lectures, including one on synthetic rubbers.

The inventor, said Mr. Pearson, has to compete with nature—which is supplying rubber about as economically as it can be done. In order to beat her he would have to have an extraordinary cheap base—sawdust, say, or mud. But the demand for rubber is so great that it will be sure to keep pace with any supply.

Asked for an average cost price of rubber, he said it could be produced at 14 cents a pound, and would be sold at a dollar. He agreed that that showed a very handsome margin, but contended that the planters in Ceylon and the Malay Peninsula deserved it for their pluck.

NEW TRADE PUBLICATIONS.

WHAT we have to deal with here may not be a trade publication, strictly speaking, but it serves none the less as a trade catalogue. It is a sample book of Rubber Balloon Fabric, sent out by the CONTINENTAL CAOUTCHOUC UND GUTTAPERCHA-COMPAGNIE (Hanover, Germany). Twenty-five samples are shown, a fact which alone illustrates the importance which has been attained already by the new aeronautical interest as a field for the output of the rubber industry—a subject to which, by the way, several pages are devoted in this issue of THE INDIA RUBBER WORLD. [9¾" x 5¾".]

BELDEN MANUFACTURING CO. (Chicago) issue their Catalogue No. 4 of Electrical Wires, Cables and Cordage. They illustrate a very full line, including rubber insulated wires, and the catalogue contains in addition not a little technical matter relating to wire capacity and the like, arranged conveniently for reference. [4" x 8¼". 123 pages.] A discount list accompanies the above.

INTERNATIONAL RUBBER AND ALLIED TRADES EXHIBITION.

THE first International Rubber and Allied Trades' Exhibition, 1908, held at Olympia, London's largest exhibition building, during the two weeks closing Saturday, September 26, justified all the expectations entertained by its promoters and the representatives of the various branches of the rubber interest who contributed to its success. The attention which the London newspapers, and the British press generally, gave to the enterprise testified to the widespread interest in rubber which exists in the mind of the British public to-day. *The Times* came out on the morning of the opening day with an advance notice of the show, resulting from the "press view" of the Saturday afternoon previous, filling space equal to three or four columns of an American newspaper, and in which not one important feature was overlooked, and all treated in a style which would have done justice to a technical writer on rubber. The other general newspapers, in the metropolis and in the provinces, followed suit; the financial press gave special attention; and scarcely any other class of papers—scientific, sporting, or what not—failed to mention the rubber show.

As has been indicated, not a few British investors have been gaining large dividends from rubber shares, and countless others are hoping to do as well when the younger plantations have matured. But there were other reasons for the success of the Rubber Exhibition—it was interesting, to begin with; it was well conducted, and it was brought to the notice of the public in an intelligent manner. Never, perhaps, was an exposition so thoroughly international in character, and on so large a scale, organized with so little direct government aid in any quarter. The whole work was done within a few months, and some how the result worked out without a deficit. It is understood that the total cost of the Exhibition was covered long in advance by the sale of space in Olympia, without the guarantors being asked for a penny. It was not a gate money exhibition, but largely an invitation one, with over 150,000 tickets issued. Where gate money was offered, however, it was not declined.

To get to Olympia, the great hall in which the International Rubber Exhibition was held, one must first go to London, and after locating in some convenient hotel, probably in the "city," it is easy to reach the show building by "tuppenny tube" (the underground railway), by horse or motor 'bus, hansom, or taxicab. The latter is rather preferable, as the rates are exceeding low and the speed correspondingly high. The interior of the great Olympia building, gay with bunting and flags of all nations, filled with tropical exhibits as well as with the machinery necessary for the production of crude rubber, was an aggregation worthy the interest of any one whether in the trade or not. Perhaps no other industry in the world could have brought together men from such diverse and distant parts of the earth. One rubbed elbows with government officials from Europe, Asia, Africa and the Americas; with planters from Ceylon, Federated Malay States, Java, Sumatra, Mexico, Hawaii, and indeed from the whole planting world;

Front View of the Building Where the London Rubber Exhibition Was Held.

INTERNATIONAL RUBBER EXHIBITION AT THE OLYMPIA—MALAYSIAN AND NETHERLANDS SECTIONS.

eminent botanists meet practical rubber manufacturers. Rubber factory chemists chat with successful planters; rubber importers, rubber machinery manufacturers, rubber chemical manufacturers, and rubber editors shake hands and exchange views. Every now and then in various parts of the great exhibition hall appeared the genial, energetic, organizing manager, Mr. A. Staines Manders, or the friendly, courtly Colonel Bosworth, active chairman of all committees—introducing, suggesting, and smoothing away difficulties with a deftness almost magical. The manufacturing and planting world, English and Continental, took the Exhibition very seriously, and were deeply interested therein. In keeping with this was the general tone of the Press, which devoted pages to descriptions of exhibits and interviews with distinguished visitors. In keeping also with this dignity were the engraved cards of invitation, sent out by Sir Henry A. Blake, G. C. M. G., president of the Exhibition, bidding those interested to the opening ceremony on the afternoon of Monday, September 14. Equally elegant were the cards sent by the same distinguished gentleman to the great newspapers, whose representatives enjoyed a private view of the exhibition on Saturday afternoon, the 12th, followed by a press banquet in the evening.

SIR HENRY ARTHUR BLAKE, G. C. M. G.
[President of the International Rubber Exhibition.]

The exhibits were for the most part on the one floor of the main exhibition hall, so disposed that none could obstruct the general view, though several extensive collective exhibits were mounted in a most attractive manner—as those from Ceylon, British Malaya, the Netherlands and Amazonas. Grouped about the main hall were large and small rooms, for the use of the officers and committees of the Rubber Exhibition, planters' and other associations, commissions from various governments, and for meetings and conferences in general. The Welcome Club, for private season ticket holders, newspaper men and exhibitors (principals only), tended to promote the social side of the Exhibition, and there were, besides, dining, refreshment, and tea rooms in the building.

THE DINNER TO THE PRESS.

The dinner to the Press on Saturday evening preceding the show, in Pillar Hall, Olympia, under the presidency of Sir Henry Arthur Blake, G.C.M.G., was attended by representatives of more than 40 journals, besides distinguished visitors from abroad. The guests of the evening had attended the Private View of the

A. STAINES MANDERS.
[Organizing manager of the International Rubber and Allied Trades Exhibition at Olympia.]

Exhibition during the afternoon. The Chairman (Sir Arthur Blake) said:

"On behalf of the Committee I welcome here most heartily the representatives of the European and American Press who have done us the honor of attending the Exhibition.

"And now, gentlemen, may I say a few words about the Exhibition, which you have been examining to-day, and of which your judgment will fly to the uttermost parts of the earth? You will have observed that this is not merely an Exhibition to attract a gaping crowd, but is in fact a Congress of all who are interested in the growing and manufacture of rubber, and as the first International Rubber Exhibition held in Europe will mark an era in the history of what will one day be among the greatest commercial interests in the world.

"When I remind you that 30 countries have sent exhibits and no less than 18 governments have sent representatives, you will

COLONEL W. J. BOSWORTH.
[Chairman of the Executive Committee of the International Rubber Exhibition.]

realize the importance attached to it. Here the investor, the planter and the manufacturer meet face to face, and every process of production and manufacture will be discussed at the meetings to be held during the Exhibition. Germany has given us a chemist wizard in Dr. Fritz Frank, who will give practical demonstrations in his laboratory, whilst Mr. Pearson, of THE INDIA RUBBER WORLD, will enable us to see the practical work on the spot of the rubber section of the pioneers of commerce, whilst the splendid exhibits of the Silvertown company, Messrs. Dunlop, and others, will show what has been and is being accomplished. It is a mere platitude to say that the utilization of rubber is only in its infancy, and yet the first use of it on record goes back into the dim mists of tradition. For in the Indian epic of Ramayana, written more than 2000 years ago, Rama is mentioned as living in the woods for fourteen years, during which time he used the bark of a tree for clothing, whilst the hair wash that matted his hair was the juice of the banzan, now known to rubber growers as the *Ficus elastica*.

"I look forward to the time when rubber will compete with the quarry, and I have the authority of a well known manufacturer for saying that at 2 shillings per pound rubber can be economically used for street pavements. I think that those interested in rubber owe a debt of gratitude to Colonel Bosworth, the chairman, and especially to the organizing secretary, Mr. Staines Manders, for the untiring and capable energy that has brought the Exhibition to so successful an issue.

"To the gentlemen who represent the Press to-night I again offer a warm and hearty welcome and with an invitation to Messrs. [the names of several speakers were given] to respond, I ask all present to raise their glasses with me to the continuance of all that is good in that great world power, the Press."

The health of Sir Henry A. Blake, G.C.M.G., president of the Rubber Exhibition, was proposed by Colonel W. J. Bosworth, chairman of the executive committee, in the following words:

"I have now the honor to propose a toast which I feel sure you will receive with unbounded enthusiasm, and that is the health of our President, Sir Henry Blake. It would have been no slight advantage to this Exhibition if so conspicuous a statesman and empire-maker had merely permitted us to use his name as an indication of his approval of the enterprise, but you will, I am sure, readily understand how greatly we are indebted to him when I tell you that no detail has been too small for him to examine and criticize, and that we have continually received letters making such valuable and practical suggestions as would be expected from a man of such ripe wisdom and judgment. I know that our organizing manager, Mr. Stanes Manders, notwithstanding his vast experience in organizations of this kind, gladly and thankfully acknowledges the debt he owes to Sir Henry's acumen. Our President has taken infinite pains to make a success of this Exhibition because he is deeply interested in the welfare of this great industry whose prosperity we are all endeavoring to promote. I am sure that members of the committee, gentlemen who will take part in the conferences, rubber growers and manufacturers—British and foreign, as well as exhibitors generally—will find it an abiding source of gratification to remember that they have served under a President revered by countless people over whose destinies he has exercised control; loved by all with whom he comes in contact, and respected throughout the wide world.

"Gentlemen, I ask you to join me in pledging Sir Henry Blake. Let us with all our hearts wish him happiness and prosperity, with length of days so that he may, for very many years to come, continue to benefit his country and his fellow creatures by pursuing the objects of his useful life."

H. KERR RUTHERFORD.

[Chairman of the Rubber Growers' Association (London), and of important rubber and tea planting companies; a vice-president of the Rubber Exhibition.]

ERNEST E. BUCKLETON.

[Convener of the Rubber Manufacturers' Conference held in connection with the Exhibition.]

The speakers were chosen by alphabetical arrangement of the countries represented, America coming first and represented by the Editor of THE INDIA RUBBER WORLD, who sat at the right of the Chair. The other speakers were Monsieur E. Thiroux, of *La Caoutchouc et la Guttapercha;* Herr K. W. Wolf-Czapek, of *Gummi-Zeitung;* Dr. W. F. Schimmell, of *Sourabaya Courant* (Java); Mr. G. C. Bellairs, of the London *Times;* Colonel W. J. Bosworth and Mr. A. S. Manders.

Others peresent and not already named were Senhor N. H. Witt, commissinoer from Manàos; Senhor H. Vasconcellos, commissioner for Brazil; Heer H. S. J. Maas, consul for the Netherlands; Mr. R. Derry, commissioner from Malaya; Dr. Rudolf Ditmar, rubber-chemical school in Gratz, Austria; Dr. Tromp de Haas, director of the government gutta-percha estate in Java; Dr. A. G. N. Swart, president of the Netherlands committee; Dr. D. Sandmaun, of the royal Prussian commercial court; Dr. Theodore E. Smith, *India Rubber Review;* Mr. M. Kelway Bamber, representing the Ceylon government.

The Official Catalogue of the Exhibition was a most excellent piece of work, embracing not only an informing description of a vast number of exhibits, but admirable introductions and treaties, and portraits of prominent persons.

Opening of the Rubber Exhibition.

THE official opening of the Rubber Exhibition occurred at 2:30 P. M. on September 14. At that hour Sir Henry A. Blake, G.C.M.G., was received by the reception committee and proceeded to the dias. There he was invited by the chairman of the committee to declare the Exhibition open and to start the machinery. After the President, accompanied by the reception committee, made a tour of the building and inspected the exhibits. While this continued the band played the national anthems of the several countries taking part in the Exhibition, concluding with the British.

In declaring the Exhibition open the President said:

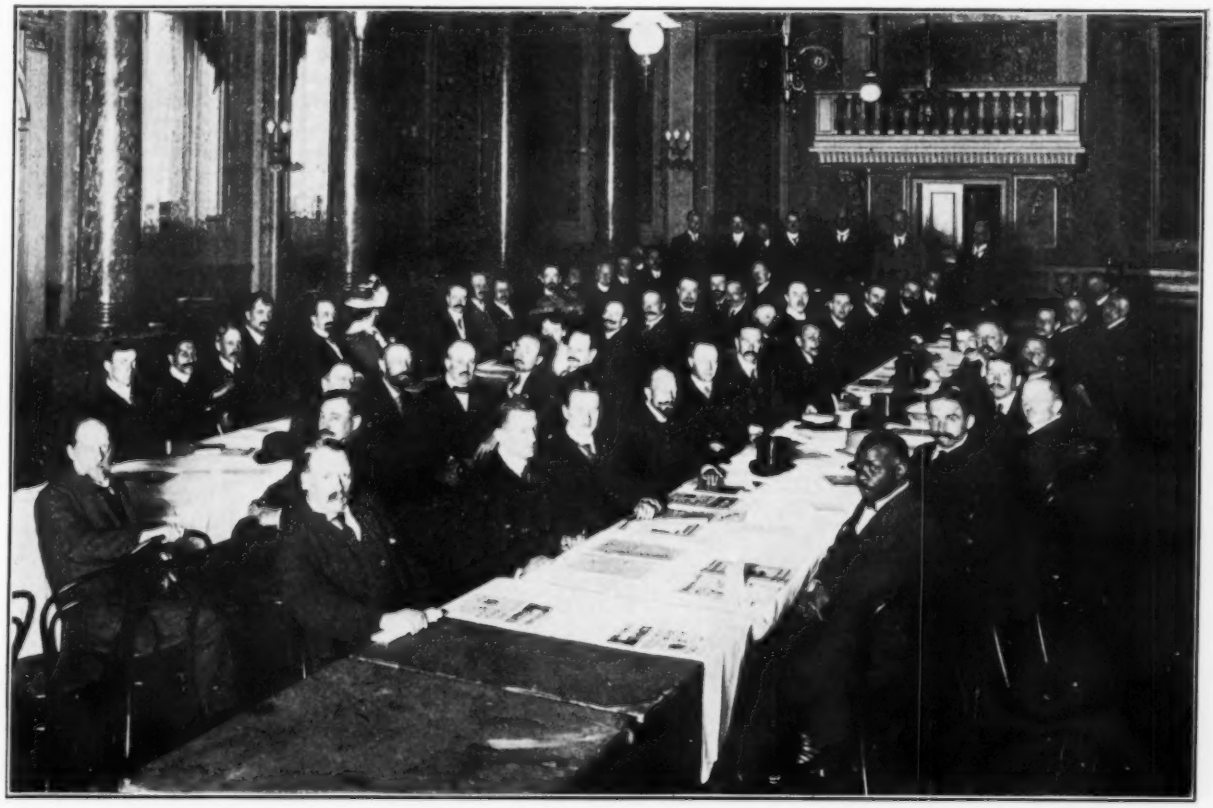
"Colonel Bosworth and Members of the Exhibition Committee: I appreciate deeply the honor that you have done me by inviting me as your President to open this unique and important exhibition, illustrating as it does every phase of the great india-rubber trade from the germination of the seed to the ultimate uses in some of the thousands of channels through which manufactured india-rubber ministers to the wants of modern society.

"But first I must congratulate you, and especially your organizing manager, Mr. Staines Manders, upon the energy and ability that have produced the satisfactory results that we see around us.

"When we remember that every portion of the tropical regions in which the rubber producing plants grow, including Asia and the great islands of the southern seas; Africa, Central and South America, and the West India islands has sent its contribution, that 30 rubber growing countries are contributing, and that no less than 18 governments have sent their representatives in charge of their exhibits, you will realize how great is the importance attached to this first International Rubber Exhibition held in Europe; and on your behalf I welcome our foreign friends who have joined us in this movement for mutual instruction and advancement in the many problems connected with the production of raw rubber that still remain unsolved, as also those who have sent here their beautiful and delicate machines—that you will presently see start into life, and the manufacturers who have exhibited some splendid specimens of finished products.

"The Exhibition marks an era in the history of rubber—a product that during the past half century has played a greater part than any other substance in expediting human progress, for without it no cables could have been laid between far distant continents to give the means of that instantaneous communication that make for peace and friendship and commerce.

"This is no mere exhibition in the ordinary sense; it is rather a great International Congress of all classes who are interested in what is now a rapidly expanding trade and what will one day be among the largest fields for sound investment in the world. But 30 years ago the rubber then used was produced almost exclusively from the far interior of the forests of Brazil, and you will see in the fine exhibit sent by the Brazilian government the form in which the rubber was produced, and the reproduction of the primitive but effective process of its preparation for the market. To-day, thanks to the Royal Botanic Department at Kew which distributed the seeds to Ceylon and India, the plantation of rubber has increased so rapidly, especially within the last decade, that it is computed that between Ceylon, Malaya and other Eastern countries there is now an area of over 500,000



First Session of the International Rubber Conference.

acres planted with rubber from which the bulk of the plantation rubber exhibited here to-day has come, while the Netherlands government sends balata from Dutch Guiana, and smaller but no less interesting exhibits are sent from Jamaica, British Guiana, Trinidad, Dominica and S. Lucia.

"Here it is proposed to hold meetings during the Exhibition at which demonstrations will be given, papers will be read by experts and discussions will take place upon them, and investor, planter, chemist, mechanical engineer, broker and manufacturer will have an opportunity of coming together and considering the business in every aspect; in fact, for the time Olympia will be a technical college working at high pressure and equipped as no technical college has ever been before.

"I desire to acknowledge the liberality with which Messrs. Gow, Wilson & Stanton, Limited, of Rood lane, have offered a valuable cup as a special award for most economical and complete process for preparing Pará rubber from the latex.

"It is almost to a day just two years ago when, on September 13, 1906, I opened the first Rubber Exhibition in Ceylon, in the beautiful Botanic Gardens at Peradeniya, with a similar arrangement for the reading of papers and discussions. It was then suggested that it would be well if in two years another Exhibition should be held in the East and progress noted. I little thought then that it would be my good fortune within that time to open another Rubber Exhibition. You will therefore understand with what pleasure I find myself connected as President with one of far greater scope, in the very heart of the commercial world, which, with every good wish for the success of its mission, I now declare open."

The machinery in place was then set in motion.

What Was Seen at the Show.

CEYLON.

THE Ceylon section was extensive and its displays bearing upon rubber production interesting and informing. The success of the Ceylon Rubber Exhibition of 1906 led visitors to Olympia to expect something notable in this section, and in this they were not disappointed. There were collective exhibits from Ceylon districts, sometimes through the efforts of the local planting associations, and there were exhibits by single estates or individuals. A number of items were sent by the Royal Botanic Gardens. The work of the joint committee of the Planters' Association of Ceylon and the Chamber of Commerce at Colombo also contributed to the display, as did Mr. M. Kelway Bamber, the government representative for Ceylon. Altogether the following 39 rubber plantations are named in the official list as being represented collectively or individually:

Aberdeen	Duckwari	Mahawala	Suduganga
Ambangonga	Gikiyanakande	Nakiadeniya	Syston
Arapolakande	Grand Central	Nikakotua	Udapolla
Ballacadua	Halwatura	P. P. K.	Vogan
Bandarapola	Hanwella	Pallekelly	Vogan Tea Co.
Culloden	Hapugastenne	Pantiya	Waharaka
Dangan	Katugastota	Perth	Walpola
Deaella	Kepitigalla	Plate & Co.	Wariapolla
Devitura	Kondesalle	Polatagama	We Oya
Dolahena	Kumaradola	Putupaula	

The Ceylon exhibit covered every kind of rubber produced in the colony—Pará, Ceará, and so on—biscuits, crepe, worm, block, sheets, lace, and so on through the list. There were specimens of latex and rubber seed oil; rubber vacuum dried and otherwise; rubber soil and fertilizers; specimens of plants grown for catch crops; sections of rubber trees showing their appearance after tapping by different methods; tapping tools in variety; young rubber plants in Wardian cases; and, finally, many photographs illustrative of rubber cultivation. The Planters' Association of Ceylon sent an extensive series of panel views. The Botanic Gardens sent two *Hevea* trees two years old and one of three years growth.

Ceylon had also a considerable representation in the general or commercial section, in which several estates not having exhibits in the Ceylon section were represented.

The Rosehaugh Tea and Rubber Co., Limited (exhibit No. 3), own estates aggregating 10,465 acres on which an important amount of rubber is planted. This showed sections of trees, marked to show methods of tapping; tapping tools and collecting cups; specimens of rubber prepared by different methods; rubber oil seed and cake, and many photographs.

Rubber Plantations, Limited (exhibit No. 51).—Rubber biscuits from Dangan estates.

J. P. William & Brothers (exhibit No. 25), tropical seed and plant merchants at Heneratgoda, exhibited rubber biscuits and seeds from *Hevea*, Ceará, and *Castilloa*, all from their Kola estates.

Walker Sons & Co., Limited (exhibit No. 24), of London and Ceylon, showed samples of rubber from the Klanang Produce Co's estates, and many photograps of rubber plantation work in Ceylon and elsewhere.

STRAITS SETTLEMENTS AND MALAYA.

A SPECIAL section was occupied by the exhibits representing the Straits Settlements and the Federated Malay States. These were contributed by the government, by a number of planting estates, and by the botanic gardens at Singapore and Penang. The planters' association in the Federated Malay States sent a typical Malay house. There were many specimens of rubber, in varied forms (mostly *Hevea*), with glass cases containing flowers and fruits of rubber trees, Wardian cases with rubber plants, specimens of catch crops, and so on. The absence of Mr. J. B. Carruthers, the director of agriculture in the Federated States, who had expected to attend, but was prevented at the last moment from doing so, was much regretted. He sent an interesting pamphlet on rubber planting results which was distributed in the Malayan section.

BRITISH WEST INDIES.

THE exhibits in this section were arranged by The West Indian Committee in London, after having been prepared by the permanent exhibition committees of the several colonies.

Dominica (exhibit No. 45) sent flowers, fruits, seeds, and latex of *Hevea Brasiliensis, Castilloa elastica, Ficus elastica, Manihot*

THE CEYLON PAVILION.

Glaziovii, and *Ficus Vogelii;* also several specimens of rubber prepared from the first three species.

Trinidad (exhibits Nos. 46—47) sent specimens of various kinds of rubber produced under cultivation.

British Guiana (exhibit No. 48) was represented by 18 samples of rubber and balata prepared by the colonial forestry officer, the British Guiana Rubber Corporation, Limited; Mr. David Young, and five other individuals or private firms.

St. Lucia (exhibit No. 49) sent specimens of cultivated *Hevea Brasiliensis, Castillda,* etc.

AFRICA.

EXHIBIT No. 40 was devoted to British East Africa, one of the principal products for export from which region is india-rubber. The most important native creeper is the *Landolphia Kirkii,* but the newly discovered *Mascarenhasia elastica* is of interest. The exhibit related also to recent experimental work in introducing additional species.

The Companhia de Moçambique, operating in Portuguese East Africa, have an exhibit of 15 items, including several 10-pound samples of native rubbers in different forms, five samples of cultivated Ceará rubber, and collections of plant specimens and photographs of plants and methods of rubber cultivation.

THE DUTCH INDIES.

A NOTABLE feature of the exhibition was the department contributed by the commission appointed by the Dutch government to secure the adequate representation of Holland and her colonies. It embraced not only specimens of rubber and gutta-percha (wild and cultivated), but a profusion of maps and photographs, utensils, and the like; also displays by the rubber factories of Holland. The rubber displays are mentioned here; some of the other displays will be referred to under other headings.

The government of the Netherlands East Indies made a comprehensive exhibit of *Ficus elastica* rubber, gutta-percha, gutta-jelutong (Pontianak gum), palembang gum, fat from gutta-percha seeds, etc., from Sumatra, Java and Borneo; also maps and photographs.

RUBBER DISPLAYS FROM PLANTATIONS.

Deli Maatschappij.—Samples of rubber in six forms from *Ficus elastica* from their rubber and tobacco plantations at Medan, east coast of Sumatra. No acid is used except a small quantity of liquid ammonia in the drip tins.

Rubber Cultuur Onderneming Tji-bening.—Sixty-five bales of *Ficus elastica* rubber; plantation in Preanger regency, Java.

Cultuur Maatschappij Pangledjar.—Samples of *Hevea* rubber, exposed for over two years to light and air, from cinchona, coffee and rubber plantations in Preanger regency, Java.

Maatschappij tot Exploitatie van het land Tjimangies.—Rubber from *Ficus elastica,* from Buitenzorg, Java.

Cultuur Maatschappij Kali Djerveh.—*Ficus* rubber and photographs of coffee and rubber plantations in Loemadjang division, Java.

SPECIAL SECTION OF BRITISH MALAYA.

Particulier Land Tjikand Ilir.—Rubber from *Ficus elastica;* 40 kilos dried on tree; 15 kilos dried on leaves. From rice, rubber and coffee plantations. Serang division, Java.

Maatschappij ter Exploitate der Pamanoekan en Tjiassem Landen.—Rubber from *Ficus* and *Castilloa;* leaves and seeds of these species and *Hevea;* tapping tools and other utensils; maps. From Krawang division, Java.

Het Algemeen Nederlandsche-Indisch Rubber Syndicaat te Batavia.—Fifteen samples of commercial rubber from the firm L. Platon & Co., Batavia, Java. They embrace *Castilloa, Ficus* (wild and cultivated), and *Landolphia,* prepared by different methods.

Landbouw Onderneming Dolok en Taleon Saragi.—*Ficus* rubber from plantation of Birenstihl & Sulger, Batoe Bahra division, Sumatra.

Weise & Co., Rotterdam merchants, made a display of crude rubber (wild and cultivated), gutta-percha and balata, from the Dutch colonies, Africa, and South America.

OTHER PLANTATION DISPLAYS.

Photographs of plantations, and in some cases maps, were exhibited by Cultuur Onderneming Pasir Waringin (Java); De Rubber Planters Vereeninging at Bandjar (Java); Plantagen Gesellschaft Boenisan (Java); Anglo-Java Rubber Co. (Java); Landbouw Onderneming Tjiseroe (Java); Particulier Land Tjikandi Ilir (Java). Bantamsche Plantagen Maatschappij (Java) showed many photographs of *Hevea* and *Ficus* plantations, and Belgisch Nederlandsche Cultuur Maatschappij photographs of rubber trees 3 years old.

In addition to displays of rubber mentioned already, Het Algemeen Nederlandsch-Indisch Rubber Syndikaat showed some large photographic views of rubber in the Java botanical gardens. Maatschappij tot Exploitatie der Pamanoekan en Tjiassem Landen exhibited 21 photographs of interest of *Hevea, Ficus* and *Castilloa* trees on three plantations in Java.

THE COLONIAL MUSEUM'S EXHIBIT.

The Colonial Museum at Haarlem (foundation of the Society for the Promotion of Industry), of which Dr. M. Greshoft is director and H. A. A. van der Lek conservator, made a display embracing—

Caoutchouc from Sumatra, Java and Borneo—12 samples.

Gutta-percha and allied gums, including gutta-percha from leaves—19 samples.

Balata, from Surinam, and articles made of balata—12 samples.

Gum damor, gum copal, dragon's blood, benzoin, and other products of the Dutch East Indies.

Models of native houses in Java, and articles illustrating the life of the natives.

Publications of the Museum.

There may also be mentioned the miscellaneous exhibit of the Netherlands colonial ministry, of telegraph cable models, maps, and books.

ANOTHER DUTCH EAST INDIAN DISPLAY.

Outside of the regular Dutch East Indian department Th. L. A. Runge, of Deli-Mœda estate, Deli, Sumatra (exhibits Nos. 121,122 in the commercial department), showed specimens of *Ficus* rubber blocks of 5 kilos each, rendered extremely tough and durable by means of smoke only, and also bundles of tobacco leaves. Their exhibit embraced, in addition to photographs, a collection of 128 Batak curiosities, illustrating the life and customs of the natives in that part of Sumatra, and 20 Sumatra birds.

BURMA.

LIEUTENANT COLONEL J. A. WYLLIE (exhibit No. 42) sent from Rangoon a Wardian case containing specimens of two native rubber yielding creepers, and samples of plantation rubber from *Hevea,* Ceará and *Chavannesia* (*Urceola*) *esculenta,* one of the creepers referred to.

EXHIBIT OF THE STATE OF AMAZONAS, BRAZIL.
[The specimens of rubber shown exceed 10 tons.]

RUBBER TAPPERS' HUT, FROM THE PURUS, UPPER AMAZON.

BRAZIL.

THE principal representation of Brazil was made by the Associação Commercial do Amazonas, of Manáos, with the support of the Amazonas state government, in charge of Senhor Nicolaus H. Witt, as special commissioner of the association, which had erected a pavilion for the purposes of the display. There were specimens of rubber from the rivers Acre, Juruá, Solimoes, Purus, Madeira, Javary, and Negro, of the various grades—fine, entrefine, weak fine, sernamby (negroheads), and caucho (Peruvian) ball and slab—17 lots weighing altogether 10,046 kilograms [=22,111 pounds]. The largest lot was one of 1,471 kilos of fine rubber from the river Acre. There was included a complete outfit used in tapping trees on the Amazon, collecting latex, and smoking the rubber, the *defumador* shown being one which had actually seen use. So full was this display that it included even specimens of the apparel worn by the *seringueiros* while at work in the rubber fields. There were maps of the state of Amazonas marked to outline the rubber regions, and photographs of rubber working scenes.

The exhibit from Pará was less distinctive, but a representative large and choice collection of rubbers from the lower Amazon was sent by J. Simar da Costa. Auguste Ferreira Dias, of Pará, sent a pair of native rubber boots made and worn by Indians on the rio Yaco.

The federal government of Brazil exhibited in a pavilion a variety of specimens of Brazilian rubber, arranged for by the permanent exhibition committee of that republic in Europe.

Mello & Co., of Pará and Manáos, exhibited through their Liverpool agents a *pelle* of fine hard cured rubber weighing 262 kilograms, produced on one of their estates on the upper Juruá river.

The Brazilian Rubber Trust, Limited, of London, owning and working extensive rubber estates on the island of Marajó, in the state of Pará, had an exhibit (No. 67) in the commercial section, of specimens of Pará rubber from their properties, and of the implements used in preparing rubber, together with excellent photographs of rubber working in the forests.

GUAYULE RUBBER.

ED. MAURER (exhibit No. 82), New York, made an exhibit of specimens of guayule from factories of the following companies in Mexico:

Compania Explotadora Coahuilense, S. A., at Parras.
Salvador Madero & Co., S. e. C., at San Tiburcio.
Compania Ganadera de la Merced, at Torreon.
Fabrica de Hule Australia, at Cuatro Cienegas.
Fabrica de la Delicias, at San Pedro.

These factories are controlled by the important Madero estate, and have a combined capacity of 11 tons daily. The exhibit included also finished goods made of guayule rubber, with or without other rubbers; also deresined guayule and combinations with other rubbers made both with deresined rubber and crude guayule; also an exhibit of the guayule plant.

Elias Delafond (No. 44), of Mexico City, showed guayule without resin obtained by a new process referred to as giving it a quality similar to Pará and causing it to retain its quality indefinitely.

TRAVANCORE (SOUTH INDIA).

THE Periyar Rubber Co. exhibited a box of rubber. The Shaliacarry Rubber Co. sent a sample of plantation rubber which had taken the gold medal at the Ceylon rubber exhibition. It was grown at an elevation of 3,500 feet. Several other firms exhibited either tea samples or tea estate requisites.

MEXICO.

AN important collection of samples of plantation rubber (*Castilloa*) of which advices had been received had not arrived in London when these notes were prepared. There was an exhibit, however, representing the estate "La Esperanza," in Oaxaca State, owned by The Mexican Rubber Co., Limited, of London. Mexico was further represented in connection with the guayule rubber industry.

COLOMBIA.

NIETO ROCHA & CIA., of Bogotá, made an exhibit of virgin rubber (*Sapium biglandulosum*) from their plantation "El Dorado," at Tolima.

THE KEW GARDENS EXHIBIT.

THE director of the Royal Botanic Gardens, Kew, exhibited a selection of herbarium and museum specimens and figures and living plants illustrative of the principal genera yielding rubber of commercial importance. The plants referred to are those named below, and the display under each heading was very liberal, the whole illustrating practically the whole world of commercial rubber production to-day:

1. *Willughbeia firma.* Malay archipelago. "Getah Singgarip," or "Getah gerip."
2. *Clitandra Henriquesiana.* South central tropical Africa. "Root rubber."
3. *Landolphia Thollonii.* Southern Congo. "Root rubber."
4. *Landolphia Owariensis.* West tropical Africa.
5. *Landolphia Kirkii.* East tropical Africa.
6. *Landolphia Buchananii.* East tropical Africa.
7. *Funtumnia clastica.* Tropical Africa. "Lagos" rubber.
8. *Raphioneme utilis.* South Angola. "Ekanda," illustrated in THE INDIA RUBBER WORLD, July 1, 1907 (page 300); tuber rubber.
9. *Urceola elastica.* Malaya.
10. *Urceola esculenta.* Malaya.
11. *Hymenoxys sp.* Colorado, United States. "Colorado" rubber, or "rabbit weed."
12. *Parthenium argentatum.* Mexico and southern United States. "Guayule" rubber.
13. *Hevea Brasilensis.* Brazil Amazon valley. "Pará" rubber.

14. *Manihot dichotoma.* Southern Brazil. "Jequié" rubber.
15. *Manihot Glaziovii.* Southern Brazil. "Ceora" rubber.
16. *Sapium Jenmani.* British Guiana. "Touckpong" rubber.
17. *Sapium verum.* Colombia. "Virgin" rubber.
18. *Sapium utile.* Ecuador, Peru.
19. *Ficus elastica.* Indo-Malaya. "Rambong" rubber.
20. *Castilloa elastica.* Western tropical America. The standard native rubber of Mexico and Central America.

In addition, the Kew authorities exhibited photographs of young *Castilloa* and *Hevea,* and a group of young living plants of *Hevea Brasiliensis.*

The Kew exhibit formed part of the Loan Section, which included several other items of interest, including young rubber trees grown in London hot houses, photographs representing the growth of rubber trees at various stages, and a series of pictures lent by Francis J. Holloway, of Ceylon, showing different systems of tapping and factory (plantation) work in rubber.

RUBBER PLANTATION REQUISITES.

FRANCIS SHAW & Co., Bradford, Manchester (exhibit No. 16), exhibited: (1) Washing and crêpeing machines for preparing rubber on plantations; (2) Scott vacuum stove for drying rubber on plantations; (3) hydraulic rubber blocking press and hand pumps; (4) hydraulic sheeting press.

David Bridge & Co., Castleton, Manchester (exhibit No. 18), showed an electrically driven washing and sheeting machine working on raw rubber, the machine being connected with their improved patent friction clutches. The next process involved their improved vaccum dryer, also shown. Another machine was Bridge's patent rubber hydraulic block press. The exhibit embraced also the Da Costa appliance for the coagulation of the latex in bulk, by means of the infusion of steam and smoke.

Exhibit No. 22 was devoted to the Emil Passburg system of vacuum dryers as applied to rubber plantations, and also rubber goods factories, this being in charge of their London agency.

J. Robinson & Co., Salford, Manchester (exhibit No. 33).—Belt-driven washing mills for plantation use, with roller for macerating crêpe and sheet rubber.

Alexander David Callander, Neboda, Ceylon (exhibit No. 52), showed an instrument for grooving and tapping rubber trees, the knife making the incision and carrying off the skin of the tree at a single stroke.

Robert Warner & Co., Limited, London (exhibit No. 91), manufacturers of rubber plantation machinery showed: (1) Macerating or crêpe machines; (2) sheeting machine, with patent hot rollers; (3) horizontal direct acting steam pump; and (4) the "Walton" patent seatless stop valve.

No. 96. G. van den Kerckhove, Brussels.—"V.D.K." rubber tapping knife; "Fumero V.D.K." apparatus for smoking latex by the Pará system, in two forms.

No. 32. Charles Clark & Co., agents, London.—Vermorel's Ruapsach sprayer.

No. 100. The Bowman-Northway patent knives for tapping rubber were exhibited by Harold F. Blyth, of Stockton, the English agent.

No. 24. Walker, Sons & Co., Limited, London and Colombo.—Rubber estate requisites and tea and coffee machinery; rubber tapping knives with which practical demonstrations were given.

No. 56. "Venesta," Limited, London.—"Venesta" cases for packing rubber and rubber goods.

No. 138. Kalisyndicat G. m. b. H., London agency.—Crude and manufactured potash salts, and a collection of tropical plants and products, representative of growth by manuring with different combinations of fertilizers.

"Purub" is a process protected by patents for effecting speedily the perfect separation of caoutchouc from the latex without the use of apparatus, fumigating, or boiling. This appeared in exhibit No. 19.

No. 61 A. Tangyes, Limited, Birmingham.—Gas and oil engines, pumps, and the like.

No. 61 B. Fleming, Birkby & Goodall, Limited, London.—"Teon" vulcanized textile belting, treated with cement under a secret process, waterproof and designed for hot climates.

No. 61 C. Bergtheil & Young, London.—"Bandy" electric punkahs.

[Huttenbach Brothers & Co., Penang and Singapore, are agents in the East for the three firms last named above.]

No. 23. The Praed Patent Safety Gas Light Co., Limited, London.—An economical, non-explosive, and non-poisonous gas—from petrol, gas and air—for heating and lighting.

No. 27. Trewhella Brothers, Trentham, Victoria.—Log and stump jacks.

SCIENTIFIC APPARATUS.

LOUIS SCHOPPER, Leipzig, Germany (exhibit No. 29), showed no fewer than 11 machines for testing the elasticity and other qualities of rubber, for cutting and gaging the thickness of materials, for ascertaining the number of threads in woven material, determining the earthy ingredients of rubber, and so on.

The collective exhibition of a laboratory for scientific and technical india-rubber researches under the direction of co-exhibitors (exhibit No. 36) was under the auspices of Dr. Eduard Marckwald and Dr. Fritz Frank, of Berlin. The laboratory installations, instruments, and apparatus were supplied by Paul Altmann, Berlin; optic instruments, Ernest Leitz, Wetzlar; electrical measuring apparatus, Gans & Goldschmidt, Berlin; india-rubber roller, Joseph Robinson & Co., Manchester; stoneware, gas, and water fittings. The space was divided into special working rooms and provided with the most important implements for technical and scientific work, the whole being comprised in three compartments: (1) The physical laboratory; (2) manufactory space; and (3) chemical laboratory, the whole containing nearly a hundred different items of apparatus.

The exhibit of the *India-Rubber Journal* (No. 90) contained a collection of apparatus for testing rubber, lent by Mr. Wright, the editor, and Dr. R. Schidrowitz, of Germany, this being divided into (1) physical apparatus and (2) chemical apparatus

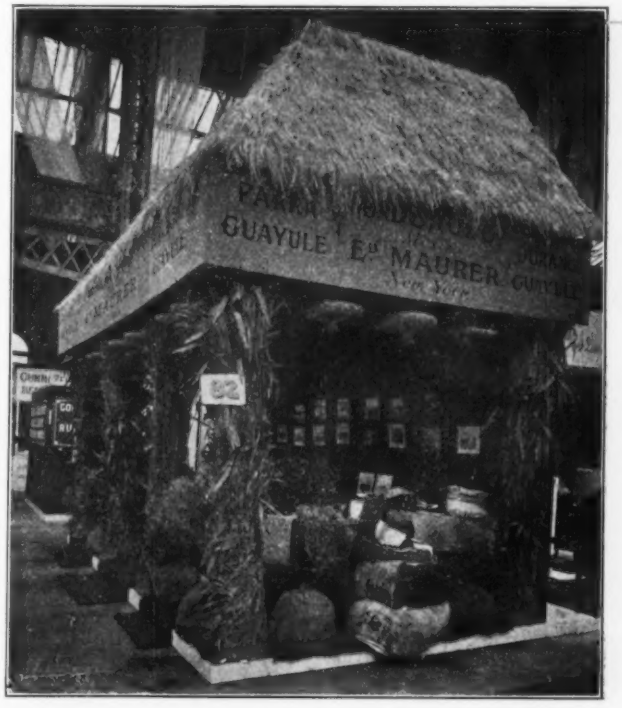


EXHIBIT OF GUAYULE RUBBER.
[Made by Ed. Maurer, of New York, representative of important guayule rubber producing companies in Mexico.]

A DISPLAY OF RUBBER MACHINERY.

EXHIBIT No. 85.

used in rubber work. This portion of the exhibit embraced 25 items, and was very comprehensive in character, as well as very interesting.

A. D. Cillard fils, Paris (exhibit No. 105), showed the "P. & B." Dynamometer, for testing india-rubber, gutta-percha, tissues, threads, wires, and the like, and their new apparatus called the Elasto-Durometer, for determining the elasticity of india-rubber, gutta-percha, and other materials.

RUBBER GOODS FACTORIES.

THE India-Rubber, Gutta-Percha and Telegraph Works Co., Limited, London (exhibits No. 4, 5 and 6).—"The history of cycle tyres," illustrated with models from the earliest practice to the present, in tires for bicycles, followed with similarly arranged models of motor tires, including the company's latest products "Persan" and Palmer Cord. Also historical display of rubber matting and floor covering, dating back more than a half century; also rubber stair treads and nosing; miscellaneous rubber goods; gutta-percha raw and manufactured, including the latest Silvertown golf balls; an excellent display of ebonite (hard rubber) goods; surgical appliances, fountain pens, and so on. In addition, samples of rubber and gutta-percha insulated cables of various kinds are shown.

Irwell and Eastern Rubber Manufacturing Co., Limited (exhibit No. 74), Manchester.—Balata belting, balata conveyor belt, and general mechanical rubber goods; cab tires, packing, valves, etc.; specimens of balata and of the cotton duck used.

The Northern Rubber Co., Retford, Notts (exhibit No. 35).—General rubber goods for mechanical purposes; waterproof goods; leatherite jointing (sole manufacturers).

The Liverpool Rubber Co., Limited, Liverpool (exhibit No. 88).—A circular rubber mat which has been in use for 35 years.

The India Rubber Manufacturing Co., Manchester and London (exhibit No. 89 A).—Revolving rubber heels of four types, other rubber heels, and heel tips.

Diespeker, Limited, London (exhibits Nos. 59-60), made a display of the Dunlop Rubber Co.'s rubber tiling, for use in public and private buildings, on steamships, yachts, railway carriages, and the like.

Thomas Balshaw, manufacturers' agent, London (exhibit No. 110), representing the following German houses:

Otto Dillner, Leipzig—Seamless rubber goods, hard rubber waterproofed specialties.

Gummifabrik Westend, G. m. b. H., Berlin.—Ebonite for the electrical and engineering trade.

Neumann & Boetler, Hamburg—Asbestos and asbestos rubber goods.

The Hanseatic Vulcanized Fibre Co., Limited, Hamburg—Vulcanized fiber sheets, rods and tubes.

Société Industrielle des Telephones, Paris (exhibit No. 99), Telephone apparatus, arc lamps, lighting installations; industrial rubber; tire "L'Electric"; rubber shoes; electric wires, and cables of high and low tension.

Nederlandsche Caoutchouc en Gutta Percha Fabriek "St. Joris," firm Bakker & Zoon, at Ridderkerk, Holland.—Mechanical rubbers, tires, gutta-percha and hard rubber goods, rubber-asbestos products.

Gebroeders Merens Fabriek van Caoutchouc Arkikeln, Haarlem, Holland.—Technical rubber goods; hard rubber.

Amsterdamsche Caoutchouc Fabriek, voorheen Pompe & Co., Amsterdam, Holland.—Rubber flooring tiles showing the coats of arms of Great Britain and of the Netherlands.

Nederlandsch Guttapercha Maatschappij (Netherlands Guttapercha Co., Limited), Singapore (exhibit No. 58), who have in operation the only rubber goods factory in the Far East, exhibited their products of solid rubber tires, hose, buffers, and other rubber goods.

RUBBER WORKS MACHINERY.

THE various engineering firms making exhibits displayed machinery for rubber works as well as for plantation purposes—as, for instance, David Bridge & Co., who are referred to more fully under another heading. The following, however, seem to require special mention as suppliers of equipment for rubber works:

Francis Shaw & Co., Bradford, Manchester (exhibit No. 16), exhibited: (1) Hydraulic press for all descriptions of small molded rubber goods and (2) a machine of exceptional strength for grinding waste rubber.

Werner, Pfleiderer & Perkins, Limited, Peterborough, England (exhibit No. 14).—Machinery for washing and masticating rubber, gutta-percha, and balata; also for making rubber solutions and doughs and mixing and sifting compounding materials. Also mixing and incorporating machines for all requirements.

RUBBER FACTORY SUPPLIES.

THE British Recovered Rubber Co., Limited (exhibit No. 150), Liverpool.—The "Amazon" standard grades of recovered rubbers.

The Northwestern Rubber Co., Limited (exhibit No. 84), Litherland, Liverpool.—Reclaimed rubber manufactured under the Marks alkali patents. Mr. Ernest E. Buckelton, general manager, who controls the executive and selling departments, and who is equally well known to American and European rubber manufacturers, was active from the beginning in promoting the objects of this exhibition.

Alfred Smith (exhibit No. 89), Clayton, Manchester.—Reclaimed rubber, rubber substitutes, chemicals, and colors.

Typke & King, Limited (exhibit No. 75), London.—Rubber substitutes, chemicals, and colors; also specimens of rubber goods in which these have been employed.

The British Murac Syndicate, Limited (exhibit No. 78), London.—Pure Murac and products.

Forster & Gregory (exhibit No. 79), London.—Samples of coloring materials and vulcanizing and preserving agents used in the manufacture of rubber goods, and some of the results of their application to these purposes.

The Lipsia Chemical Works, Limited (exhibit No. 20), Mugeln near Leipzig, Germany.—Magnesia (carbonate and oxidized) for the rubber manufacture.

Holt Town Rubber Co.—W. Openshaw, proprietor (exhibits Nos. 93-94), Manchester.—Light and dark substitutes; recovered rubbers; pigments for the rubber manufacture.

John Bright & Brother, Limited (exhibit No. 81) Rochdale, England.—Cotton ducks for tires, rubber and balata belting, packing, hose, mechanical goods, and canvas shoes.

The Crosskeys Manufacturing Co. (exhibit No. 86), London.—"Glossine," a solution for protecting rubber from oxidation and for waterproofing leather; "Endurite," a waterproof cement for uniting rubber to rubber or leather; "Newit" waterproof invisible boot soles and patches.

LITERARY EXHIBITS.

THE *Ceylon Observer*, of Colombo, Ceylon, and the allied publications of A. M. & J. Ferguson, including many important books relating to tropical agriculture, occupied exhibit No. 1 of the commercial section.

The *India-Rubber Journal*, the representative British journal of the rubber trade, edited by Herbert Wright, F.L.S., with a collection of technical works, occupied exhibit No. 90. Another feature of the exhibit is mentioned under a different heading.

The "Tropical Life" stand (exhibit No. 103) was devoted to planting and scientific journals, including *Tropical Life*, edited by H. Hamel Smith, and general literature of interest to planters and scientific men in the tropics.

A. D. Cillard fils, of Paris (exhibit No. 105), exhibited his journal *Le Caoutchouc et la Gutta Percha* and other technical publications, together with some apparatus mentioned in another place.

Exhibit 106 was that of Dr. Rudolf Ditmar, of Graz, Austria, who was represented by a number of technical publications of which he is the author, relating to india-rubber.

The German rubber journal *Gummi-Zeitung*, of Berlin, occupied exhibit No. 107. In addition to a complete file of that journal were shown a number of volumes relating to rubber by the same publishers. These include some of the most important books on rubber in the German language.

Capper & Sons, publishers of the *Times of Ceylon*, of Colombo, occupied exhibit No. 137, with files of their paper and of their other publications, including an excellent "Tropical Investor's Guide."

The American Register, Paris and London (exhibit No. 73), is a journal of American and European circulation, especially among the tourist class.

THE INDIA RUBBER WORLD, New York (exhibit No. 85), exhibited bound files of the journal, and distributed printed matter regarding the character and advertising of the books issued from its office. An "INDIA RUBBER WORLD Information Bureau" was maintained, with Mr. Henry C. Pearson, the editor, in attendance.

Gow, Wilson & Stanton, Limited, London (exhibit No 41 B), occupied their space with a series of statistical demonstrations of the respective amounts of plantation and forest grades of rubber produced in the world.

MISCELLANEOUS EXHIBITS.

A. W. LESLIE, London (exhibit No. 108), an extensive handler of waste-rubber, showed a large assortment of the various grades of scrap.

The Russian-French India-Rubber, Gutta-Percha and Telegraph Co., "Prowodnik," Riga, Russia (exhibit No. 63), exhibited reclaimed rubber from Russian galoshes. Selling agents in England: Edmund Schlüter Co., and John Lang, London and Liverpool.

Batu Caves Rubber Co., Limited, London and Federated Malay States (exhibit No. 26), showed a board-room table covered with rubber to demonstrate another use to which rubber can be put.

The leading British railways occupied spaces for exhibiting photographs, paintings, etc., of their respective systems. Exhibit No. 151 was taken up by the Kearney high speed railway model, a distinctive feature of which is a single bearing rail, the system being adaptable to tube railways as well as surface roads.

Steamship companies were represented as well as railway lines leading into London. Exhibit No. 41 A was taken by the Booth Steamship Co., Limited, Liverpool, who displayed attractive views of their steamers at sea.

Several exhibits were devoted to the facilities for handling crude rubber in the English market, including the following:

No. 41. London and India Docks Co., London.—View of vaults and upper floors, showing the methods of sampling and sorting and weighing rubber and gutta-percha.

No. 41 C. Bull Wharf and Warehouse, London.—Photographs of the wharf and showing operations of handling crude rubber and gutta-percha.

No. 133A. Henry Kiver & Co., Liverpool.—Views of rubber vaults.

There were in every part of the exhibition the photographs of cultivated rubber trees in different stages of growth, and illustrating the various processes of rubber plantation management, as well as of the character of the laborers and their manner of life. In addition to special mentions of photographs throughout this report, reference may be made to exhibits Nos. 97, 98, 101, and 102 as devoted entirely to material of this class.

There were such further exhibitors as the Salter Typewriter Co., the Tella Camera Co., "Our Dumb Friends League," Strong & Co. (florists and decorators), and so on.

E. R. & F. Turner, Limited, London, showed specimens of smooth cast iron rolls, and a "John Bull" vertical steam engine.

THE UNITED STATES AT THE EXHIBITION.

THE Rubber Regenerating Co. (Chicago) had an exhibit, run by Mr. R. M. Howison, of London, who will be remembered kindly by many members of the trade in America. They are erecting a plant at Stoke Newington. Mr. H. MacKusick, their superintendent, has been in London for a while looking things over.

Mr. Frederick C. Hood, of the Hood Rubber Co. (Boston), attended the Exhibition. On the day of his arrival in England, just before the opening, he beat one of the crack local golfers.

Mr. Ed. Maurer, of New York, representing an important guayule rubber interest which has a fine display at Olympia, was personally in attendance at the Exhibition.

Mr. Theodore E. Smith, editor of the *India Rubber Review*, arrived in time to attend the initial proceedings, held on the afternoon of September 12.

Mr. Robert B. Baird, vice-president of the Rubber Trading Co. (New York), an important concern in the crude rubber trade, was in attendance throughout the Exhibition.

Mr. Quincy Tucker, of Boston, who has studied extensively the Bolivian rubber situation, represented the *Boot and Shoe Recorder*.

Mr. William A. Jameson, of The Fisk Rubber Co. (Chicopee Falls, Massachusetts), was a participant in the proceedings at Olympia, incidental to a six-weeks' vacation in Europe.

Mr. S. W. Evans, of New York, of the Picher Lead Co., dealers in rubber manufacturers' supplies, was an interested visitor at the Exhibition a number of times.

Some Notable Exhibits and Mr. Bamber's Processes.

By Hubert L. Terry.

THE main features of this International Rubber Exhibition have been dealt with by the Editor, and the observations I am about to make refer entirely to the raw rubber exhibits of Ceylon and British Malaya, which occupy two of the most prominent stands in the Hall. Stand is perhaps too plebeian a term to use in connection with the ornate pavilion of Ceylon and the attractive native dwelling of Malaya, but its significance will not be misunderstood. These two exhibits, along with the Dutch colonial exhibits, may, I think, be selected from the bulk of the show as of special interest, embodying as they do the results up to date of the rubber planting industry—one of the newest departures in economic botany. In no way do I wish to belittle the interest attaching to exhibits of raw rubber from the forest—such as the splendid show made by the State of Amazonas. Native rubber, however, is not exactly a novelty, and as the object of the exhibition was declared by the president in his opening speech to be primarily educational, it is important to lay stress on the greatest novelties in so far as they have an important bearing upon the rubber interest generally.

Both the Ceylon and the British Malaya stands contained samples of plantation rubber from the most important of the numerous companies located in their respective districts, and it would probably prove more monotonous than instructive to refer to each of these separately, especially as the rubber in its various forms of sheet, block, crêpe, worm, etc., is much the same as produced by each company. Botanical exhibits were numerous, and also photographs of general scenery and processes connected with the industry. Samples of such catch crops as indigo and tapioca were also to be seen, and mention should not be omitted of the model estate rubber factory at the Ceylon stand fitted up according to Mr. Kelway Bamber's ideas of how the work of preparing raw rubber for the European market should be carried out. It is, of course, notorious that the procedure on different estates varies considerably, which is not surprising, seeing the novelty of the whole business, and no doubt for some time to come we shall witness great divergencies of opinion.

There is no doubt, however, that the planters will best serve their own interests if they endeavor to produce rubber of always the same quality, even of the same tint. This latter point may not really be of any importance, but it carries weight with the less enlightened manufacturer. The great complaint in manufacturing circles up to now has been about the want of uniformity in bulk lots of plantation rubber, and this is of course due to the different procedure adopted on the various estates, and also to the variable procedure of any particular estate. In this respect, therefore, I consider that the detailed proposals made by Mr. Kelway Bamber for the coagulation and preparation of the rubber on exact and uniform lines form one of the most important topics brought to the notice of visitors to the exhibition. The variation in the color of the plantation Pará from Ceylon and Malaya as shown in the numerous specimens on the stands is very striking, practically all shades from pure white through yellows and browns to black being represented. If Mr. Bamber's process is generally adopted in the future it will mean that a uniform product which is practicallly white will be produced and that rubber manufacturers will be able to order lots amounting to several tons with full confidence that the quality will be the same throughout. It would take up too much space to give Mr. Bamber's proposals in anything like detail, but a summary of the main points may be attempted.

It is important to make a daily testing of the latex from each field in order to determine when the proportion of rubber has fallen to the minimum paying quantity.

Whatever method of tapping is employed, the trees should be marked in such a way that the bark will be removed systematically and no irregular patches left which can not be tapped. The best angle is 45°, and this should be maintained by keeping the cuts perfectly parallel from start to finish, and not gradually making them more vertical towards the lower end.

The knife must be kept perfectly sharp so as to cut and not tear the bark, and immediately after making the cut the channel should be moistened with a very dilute ammonia or formalin solution applied by means of a piece of cloth on a stick; this encourages the flow, delaying the coagulation, and the proportion of scrap rubber is reduced.

Mr. Bamber advised the use of glass or stoneware cups in preference to sheet iron, as they are more readily cleaned. They are also to be washed before use in a dilute formalin solution made by mixing 1 part of the ordinary 40 per cent. solution of commerce with 40 parts of water. All the latex collected in the cups is to be strained through fine wire gauze into enamelled or wooden buckets, and on arrival at the factory is again strained into large vats and sampled for its yield of rubber. With regard to the determination of the amount of web rubber per gallon it may be remarked that unless the exact procedure is detailed very variable results will be obtained by different operators, a very similar case being the approximate determination of gluten in flour. With regard to coagulation Mr. Bamber does not seem to favor mechanical methods except where the amount of latex to be treated is only small. His proposals are a high temperature and the use of well diluted acetic acid.

It is in the coagulation that his most important suggestions arise. He has found that if the latex has steam passed into it until the temperature rises to 180° F. and is maintained at this heat for three hours, certain organic substances of a proteid nature are destroyed and the rubber subsequently precipitated by acetic acid is quite white and maintains this color after shipment. It is mentioned that a solution of wood creosote in spirit can be added during coagulation if desired. Presumably the doctors are not agreed as to the utility or otherwise of this addition of creosote. Samples of perfectly white rubber prepared by this oxydase destroying process were to be seen on both the Ceylon and Malaya stands, and it will be interesting to hear what the trade has to say about them. Mr. Bamber's main contention is that uniformity in bulk will be secured, and, further, that the colorless rubber will be found of special use in the manufacture of certain goods—such as teats, for example—the white color not being affected by the vulcanization.

With regard to the subsequent washing and rolling processes it is advised after the first rolling to again immerse the rubber sheet in water at 180° F. to ensure complete destruction of the oxydase and the complete removal of all soluble matters on which bacteria and fungi grow. After this the rubber is allowed to contract naturally in cold water out of contact with the air.

Mr. Bamber is against the too rapid drying of the rubber and remarks that the 10 to 15 per cent. of moisture in Brazilian Pará is probably an advantage to it. He does not seem to be enamored of the vacuum drying process, and thinks that the vacuum process if used at all should only come after the natural drying in order to get the rubber quite dry for packing. The best method in his opinion is the use of perfectly dry air which can be obtained easily and economically by a plant of which a working model was shown at the Ceylon stand. It involves the use of a refrigerating plant and a system of pipes which strike one as decidedly ingenious, and for the purpose to be achieved to be devised on sound scientific lines.

Rubber Exhibition Miscellanea.

SIR HENRY BLAKE.

SIR HENRY ARTHUR BLAKE, G.C.M.G., who presided over the Rubber Exhibition, after having been in the public service for years at different posts, in December, 1903, became governor of Ceylon, where his work was of marked excellence. While there he showed an acute interest in the development in every way of the colony, and particularly in the then new rubber planting interest. As will be remembered, he presided over the successful Ceylon Rubber Exhibition in 1906. Since his retirement from active public service Sir Henry has not lost his interest in rubber culture, as is indicated by such contributions from his pen as that on "The Position of the Rubber Industry," appearing in the London *Financial Review of Reviews* of June last. Sir Henry is now the possessor of "Myrtle Grove," in Ireland—Sir Walter Raleigh's historic house. It was there that Raleigh first planted the potatoes he carried from the new world.

MR. RUTHERFORD.

MR. H. KERR RUTHERFORD, of whom a portrait is given, is chairman of the Rubber Growers' Association, with offices in London, a sketch of which has appeared in THE INDIA RUBBER WORLD [November 1, 1907—page 45]. He was one of the vice-presidents of the Rubber Exhibition.

COLONEL BOSWORTH.

COLONEL W. J. BOSWORTH, born in 1858 at Birmingham, was educated successively in local schools, and Caius and Downing College, Cambridge, after which he joined the army. In search of big game he became a great traveler, visiting practically every country in which rubber is native or is now planted. *The Tropical Life* says: "His powers of organization led to his being appointed to the command of the second provisional battalion at Aldershot at the outbreak of the South African War, and it is well known how pleased the authorities were with the work he put in there, and to this day his contributions to the military press on army organization and other matters dealing with the forces attract the attention of all up-to-date army men." The same qualities of executive capacity have rendered Colonel Bosworth most helpful in the organization of the Rubber Exhibition.

A. STAINES MANDERS.

Not the least interesting feature of the Rubber Exhibition was the method followed in the organization. The suggestion of such an exhibition having been made and favorably received, and the nucleus of committees having been formed, the work of creating the exhibition was placed in the hands of a professional organizer of such enterprises—a profession, by the way, which has been developed more in Great Britain perhaps than in any country. This condition may be regarded as a logical result of the fact that Great Britain was the pioneer in the field of industrial exhibitions of the modern type—beginning with the Great London Exhibition of 1851—and the British metropolis has come to be the site of exhibitions of general importance, of yearly or more frequent occurrence, and representing at one time or another almost every business or industrial interest.

Mr. A. Staines Manders, the organizing manager of the Rubber Exhibition, was born in the "fifties," on the goldfields in Victoria, Australia, in a tent, it is probable. His father was publishing the *Goldfield News*, or some such pioneer newspaper, so that Mr. Manders's journalistic inclination comes natural to him. As to his present profession, Mr. Manders said: "My first exhibition was one day when I climbed a fence, with some help from the outside, and got in free to see the late Duke of Edinburgh open it. I also got exhibition from my mother when I got home for being out all day." His first serious exhibition was in 1879 as reporter at the Garden Palace, Sydney, and other exhibitions followed while he attended as representing the government as assistant organizing manager.

Mr. Manders has organized a number of exhibitions, some of a large character—some without pay and others on a commission basis. He was assisted in several government or public exhibitions. As *Tropical Life* (London) says; he is "a born organizer of exhibitions, if there ever was one." Already, Olympia has been secured for the World's Touring Sports, Pastimes and Travel Exhibition for 1909, and a great Canadian Commercial Exhibition for 1910. He is also at work on a Women of All Nations Exhibition, Arts, Crafts and Industries.

E. E. BUCKLETON.

MR. ERNEST E. BUCKLETON, who is by far the best known rubber man in Europe, arranged for a general conference of rubber manufacturers of the world during the exhibition. This was exceedingly well attended. Mr. Buckleton also proposed that on the evening of September 24 an invitation banquet be held for rubber manufacturers and rubber planters. This was put in charge of the Ceylon Association, Mr. E. E. Buckleton, and Mr. H. C. Pearson, Editor of THE INDIA RUBBER WORLD. Mr. Buckleton is general manager of the Northwestern Rubber Co. (Liverpool). Though a native Britisher, Mr. Buckleton can boast of a successful experience of more than a dozen years in the American rubber trade.

THE MANUFACTURERS' CONFERENCE.

The official catalogue of the Rubber Exhibition gave a list of the rubber goods manufacturers in Great Britain, France, Germany, Holland, Belgium and Italy who had intimated their intention of being present to take part in the International Conference of Rubber Manufacturers, subsequent to which THE

THE GOW, WILSON & STANTON COMPETITION CUP.

[Silver bowl (value 25 guineas) for the most economical process for preparing plantation Pará rubber from the latex, which will give the best and most uniform product on a large scale, offered by Gow, Wilson & Stanton, Limited, tea and rubber brokers, London. This was specially mentioned in President Blake's opening address.]

INDIA RUBBER WORLD received additional lists of the same kind, but at the time these notes were being compared it was impossible to give anything like a complete list of the visiting manufacturers actually in London for this purpose or who were certain to be in attendance. The list up to date, however, includes the leading firms both in Great Britain and on the Continent. The difficulty of being more complete in this respect is enhanced by the fact that in every case the names of the intended representatives of each company had not been learned. Mr. F. E. Buckleton is named in the catalogue as the Convenor of the conference.

THE RUBBER CONFERENCE.

AN important feature of the Exhibition was the International Rubber Conference, which was attended by scientific men from all the countries represented by exhibits at Olympia. One of the illustrations in this paper is a view of one of the earlier sessions of this conference. A number of papers were arranged for in advance, and others were not announced before they were read. Besides, the discussions, also to be published later, were participated in by a number of other members. At the time of preparing this report the gentlemen named below were scheduled to read papers, or deliver lectures, but all had not given notice of the topics to be covered:

Dr. FRITZ FRANK, Consulting and scientific india-rubber chemist, Berlin.
GUSTAV VAN DEN KERCKHOVE, Consulting india-rubber expert, Brussels.
G. SPRINGER, Editor *Gummi-Zeitung*, Berlin.
Professor Dr. O. WARBURG, Professor of tropical agriculture at Berlin; editor *Der Tropenpflanzer*.
Dr. WERNER ESCH, Westfalen, Germany.
ALFRED DOMINIKUS, Schwelm, Germany.
DR. PEDRO ARENO, Germany.
V. R. WICKWAR.
Dr. TROMP DE HAAS, Director government gutta-percha estate "Tjipeter," Java.
PIERRE BREUIL, Engineer; editor *Le Caoutchouc et la Guttapercha*, Paris, France.
HENRI JUMELLE, Faculty of sciences, Marseilles, France.
Monsieur BERTRAND, France.
Monsieur DYBOWSKI, Inspector General of agriculture for the French colonies.
HIPPOLYTO VASCONCELLOS, Commissioner for the republic of Brazil.
Dr. RUDOLF DITMAR, Rubber chemical school, Graz, Austria.
M. KELWAY BAMBER, F.I.S., F.C.S., Government representative for Ceylon.
DR. HENRY P. STEVENS, F.I.C., England.
Dr. D. SPENCE, Bio chemical department Liverpool University, England.
CLAYTON BEADLE, Analytical chemist, England.
W. G. FREEMAN, B.S.C., A.R.C.S., England.
Dr. JOSEPH TORREY, Analytical chemist, Liverpool.
HAROLD BROWN, England.
Dr. PHILIP SCHIDROWITZ, F.C.S., England.
Professor A. H. BERKHOUT, Ex conservator of forests in the Dutch East Indies.
Dr. A. G. N. SWART, President of the Netherlands commission to the rubber exhibition.
Dr. M. GRESHOFF, Director of the Colonial Museum, Haarlem, Holland.
Professor F. A. F. C. WENT, Professor at the University of Utrecht, Holland.
Professor G. S. BOULGER, England.
N. H. WITT, Commissioner for the state of Amazonas, Brazil.
Dr. PEHR OLSSON-SEFFER, Chairman of the delegation from the Rubber Planters' Association of Mexico.
Professor FRANCIS E. LLOYD, Director guayule experiment station, Zacatecas, Mexico.
Sir DANIEL MORRIS, K.C.M.G., Commissioner of agriculture for the British West Indies.
HERBERT WRIGHT, A.R.C.S., F.L.S., Editor of *The India-Rubber Journal*, London.
HENRY C. PEARSON, Editor of THE INDIA RUBBER WORLD, New York.

NOTES AND PERSONALS.

THE advance notices in the English newspapers contained generally notices similar to this from the Liverpool *Daily Post and Mercury* of September 8:

"During the Exhibition Mr. H. C. Pearson, Editor of THE INDIA RUBBER WORLD, New York, will give lectures on the following subjects:—1. Stereopticon lecture on the manufacture of rubber goods in the United States and Canada, with views of the exteriors of typical factories in the various lines of manufacture, such as rubber foot-wear, druggists' sundries, insulated wire, clothing, etc., to be followed by views of the interiors of factories making the same line of goods, including automobile parts. He will also show washing, drying, calendering and vulcanizing. 2. A talk on crude rubber production will cover specifically the gathering, *i. e.*, tapping, coagulation, handling and shipping of crude rubber in the Amazon countries, and in Panama, Costa Rica, Nicaragua, Mexico, Hawaii, Ceylon, and the Federated Malay States, with typical views of the countries themselves. 3. A talk on synthetic rubbers, also on substitutes and their assistants."

The India Rubber, Gutta Percha and Telegraph Works Co., Limited, had a stand on the walls of which was shown the Evolution of Rubber Tiling from 1889-1908. The final result was very beautiful, their imitation granite effects being exceedingly rich. The whole floor of their exhibit was covered with beautiful tiling also, while on the counters was shown fine samples of hard rubber in various forms, insulated wires, cables, etc.

Merens Brothers, as a part of their exhibit, showed a length of ¾ garden hose 670 feet long, made by a new machine that makes hose in any length and without the use of the braiding machine; in other words, it imitates the regular ¾ rubber garden hose, cloth wrapped and steam cured.

Typke & King, Limited, showed some wonderful substitutes in snow white, crimson and yellow, also rubber soling in which their colors were used, green, yellow, red and black. The yellow in these soles was particularly good. They had also in large glass jars samples of their full line of colors and compounding ingredients. In two huge jars of water was shown their "Parateka" in amber color and in black. It is a floating substitute with a specific gravity of 0.964.

The postmaster general of the German empire sent two important officials to make special inquiries regarding rubber. The French government was specially represented by M. Dybowski, the general inspector of colonial agriculture.

An excellent musical program was rendered by Herr Meny's Bleu Viennese Band three times daily—for an hour, beginning at noon; in the middle of the afternoon; and from 7 to 10 o'clock.

MORE ABOUT "TABBYITE."

THE company exploiting "Tabbyite" [see THE INDIA RUBBER WORLD, September 1, 1908—page 404] have supplied some further details. They say: "We do not claim it to be a substitute for rubber in the general sense, but we do know from practical tests of the material, covering a period of three years, that it is well adapted for insulating purposes, hard rubber flooring, matting, and the like. It differs quite materially from elaterite in that it is soluble in the usual solvents, and its base is ozokerite. It contains probably about 8 per cent, ozokerite, and a number of volatile and non volatile oils. It is quite easily manipulated, which distinguishes it from elaterite, the latter being quite difficult to handle in a commercial way. It is also quite different from gilsonite, the latter being an asphaltene bitumen, and exceedingly brittle." The people mining Tabbyite regard the Utah deposit as the only one in existence, and add: "It seems to be a mixture of asphalt and paraffine base oils subjected to some action in the way of heat pressure that has given it its present character."

VALENTINE B. LANG, vice president and general manager of The Hartford Rubber Works Co. (Hartford, Connecticut), died of heart trouble on September 22, at his home in Hartford. He was born in New York city in 1858. Mr. Lang was elected vice president of the Hartford company at the annual election July 17, 1906, and the additional title was conferred on him March 8, 1907. He had previously, for some time, been connected with Morgan & Wright, and was in charge of the construction of their large rubber works at Detroit, Michigan. Mr. Lang was a thirty-second degree Mason. He left a widow.

News of the American Rubber Trade.

IT is stated that the condition of the business of the United States Rubber Co. has been such during the first half of the fiscal year beginning April 1 last that the first and second preferred dividends have been fully earned. This is a better showing than some of the directors anticipated at the beginning of the fiscal year, when it was thought that it might be necessary to draw upon the surplus somewhat in order to maintain the regular dividends. The condition of the company is otherwise indicated by the fact that the company's preferred shares of late have been quoted at par or higher, after having declined, during the period of business as low as 61¼. The highest price last year—before the depression—was 109⅞.

TENNIS SHOE PRICES.

THE United States Rubber Co. on September 1 issued a new price list of tennis shoes made at the Goodyear Glove factory, in Naugatuck. List prices remain the same as last year on "outing" and "Racquet" styles, but there has been a slight advance on the "Athlete." The Glove company this year have a new feature—an extra strong high grade shoe for basket ball players.

A TRYING TIME FOR TIRES.

THE Vanderbilt Cup race this year is to occur on October 24, in Nassau county, Long Island, near New York city. The course is 25.4 miles, and the total distance 250 miles. By the way, Mr. William K. Vanderbilt, Jr., the donor of the trophy for this annual event, is reported in the newspapers to have given up automobile racing so far as he is personally concerned, after having done so much on both sides of the Atlantic to promote automobiling as a sport.

DIXON COMPANY PERSONALS.

MR. JOHN M. READY, manager of the New York branch of the Joseph Dixon Crucible Co. (Jersey City, N. J.), before settling down in that position had traveled in every American state and in Mexico, and during the past summer made a trip to Europe, from which he returned during the first week of the past month. Mr. George T. Smith, vice president of the Dixon company, at the recent convention in Boston of the National Association of Stationers and Manufacturers—where the company, by the way, had five representatives—was elected a director of that body.

RUBBERS AT A SHOE FAIR.

THE rubber shoe trade was well represented at the third National Shoe and Leather Fair, held in the Coliseum, in Chicago, Aug. 26-Sept. 2. The Hood Rubber Co. (Boston) had a display, and others were made by the Chicago agencies and branches of a number of the rubber footwear manufacturers. An exhibit was made by the Marion Rubber Co., a rubber footwear jobbing house of Marion, Indiana. Morgan & Wright (Detroit, Michigan) had a display in the findings department and the Western Electric Co. (Chicago) among the shoe machinery exhibits. The Rubberhide Co. (Boston) were also exhibitors.

RUBBER GOODS DIVIDEND.

THE directors of the Rubber Goods Manufacturing Co. (New York, September 2) declared the thirty-eighth regular quarterly dividend of 1¾ per cent. on the preferred shares, out of earnings, payable September 15.

A BANKRUPT TIRE CONCERN.

A PETITION in bankruptcy has been filed against Van's Auto Tire Co., No. 792 Seventh avenue, New York, by three creditors, two of whom are rubber tire manufacturers. The company was incorporated February 24, 1908, under the laws of New York state, with $10,000 capital authorized, to deal in automobile tires and accessories. Frank Van Tassel, No. 220 West Forty-eighth street, was one of the incorporators and later was president and active manager.

FINAL DIVIDEND DECLARED.

A FINAL dividend has been declared in the matter of the bankruptcy of the Milwaukee Rubber Co. (Cudahy, Wisconsin), the total of dividends aggregating $79,001.50, or a total of 31½ per cent. on the liabilities of the company, which were $257,525.62. The bankruptcy was reported in THE INDIA RUBBER WORLD April 1, 1906 (page 238). The plant of the company was acquired and continued in operation by another corporation.

NEW INCORPORATIONS.

MICHELIN Tire Co., of Massachusetts, under the laws of Massachusetts, with $10,000 capital, to control the business in that State of the Michelin Tire Co.; headquarters in Boston. J. C. Matlack and Emile Fontaine, of Milltown, New Jersey, are respectively president and treasurer, and L. H. Fiske, of Boston, clerk.

Wilkie Rubber Manufacturing Co., September 5, 1908, under the laws of Massachusetts; capital, $95,000, now reported to be fully issued and paid. Incorporators: Robert J. Wilkie and Arthur S. Brock, Lynn, Mass.; Annie L. Learning, Saugus, Mass.

Chester Auto and Tire-Filling Co., September 15, 1908, under the laws of New York State; capital, $50,000. Incorporators: Theodore Chester, Sudbury, Pennsylvania; Asbury J. Chester (No. 82 Arnold street) and H. C. Harrison, Buffalo, N. Y. Principal office: Buffalo, N. Y.

UNITED STATES RUBBER CO.'S SHARES.

TRANSACTIONS on the New York Stock Exchange for five weeks, ending September 26:

COMMON STOCK.

Week August	29	Sales 1,600 shares	High	34⅞	Low	33
Week September	5	Sales 800 shares	High	35	Low	34
Week September	12	Sales 1,300 shares	High	34	Low	32¾
Week September	19	Sales 2,900 shares	High	34	Low	29½
Week September	26	Sales 1,800 shares	High	30½	Low	28⅞

For the year—High, 37½, Aug. 7; Low, 17¼, Feb. 26.
Last year—High, 52½; Low, 13½.

FIRST PREFERRED STOCK.

Week August	29	Sales 1,100 shares	High	100⅛	Low	90
Week September	5	Sales 1,273 shares	High	100½	Low	100⅛
Week September	12	Sales 1,275 shares	High	101	Low	100
Week September	19	Sales 2,322 shares	High	100⅞	Low	98
Week September	26	Sales 670 shares	High	99½	Low	95¼

For the year—High, 102¾, Aug. 7; Low, 76, Feb. 19.
Last year—High, 109⅞; Low, 61¼.

SECOND PREFERRED STOCK.

Week August	29	Sales ..... shares	High	...	Low	...
Week September	5	Sales 500 shares	High	73	Low	70
Week September	12	Sales ..... shares	High	...	Low	...
Week September	19	Sales 200 shares	High	68	Low	63
Week September	26	Sales 100 shares	High	63	Low	63

For the year—High, 74, Aug. 7; Low, 42, Feb. 21.
Last year—High, 78⅛; Low, 39.

TRADE NEWS NOTES.

THE Rubber Republic Co. (Youngstown, Ohio) issue a folder which is interesting as relating to the largest fire hose award ever made—97,000 feet for the fire department of New York. Full details are given of the tests made for this hose.

The Omaha Rubber Co. (Omaha, Nebraska) have removed into new quarters, which President E. H. Sprague states will give them nearly double their former floor capacity.

The Courtney Rubber Co., who are manufacturing a special make of tires and some mechanical goods at Plainfield, New Jersey, have established their New York offices at No. 1976 Broadway.

RUBBER FACTORY CONCESSION IN MEXICO.

S. P. APPLEWHITE was mentioned in THE INDIA RUBBER WORLD some time ago as having applied to the government of Mexico for a concession to establish in that country a factory for pneumatic and other rubber goods. The Mexican secretary of fomento advises us: "It is a fact that Señor Applewhite has a contract with this department for establishing in this republic a factory for rubber goods, excepting toys. He must submit plans for said factory for approval in November next."

TRADE NEWS NOTES.

THE National Insulite Co. (Aurora, Illinois), the incorporation of which was reported in these columns last month, announce two products—"Insulite," for insulation generally, and "Ebonite," rust, acid, alkali, and weather proofing. Correspondence with the company is signed by A. H. Mikesell, one of the incorporators already mentioned.

The new rubber assistant Vulcole, described in THE INDIA RUBBER WORLD September 1 (page 418), is put up in gallon cans, the price being $1.10 per pound.

Mr. George E. Austin, general manager of Imperial Rubber Co. (New York), left on September 3 for an extended trip through the United States, as far as Los Angeles and San Francisco, and return via Vancouver and the leading cities in Canada.

The Lovell Manufacturing Co. (Erie, Pennsylvania), extensive makers of clothes wringers for the home and export trade, have a rubber department for producing the rolls required, with a capacity for supplying 2,000 wringers daily.

The Continental Caoutchouc Co. (New York) are opening an agency for their tires at Los Angeles, California, in charge of E. L. De Camp.

The Empire Automobile Tire Co. (Trenton, New Jersey) have placed their agency at Cleveland, Ohio, with Mr. E. T. Horsey, who formerly handled "Continental" tires. Mr. Horsey will cover the greater part of Ohio for the Empire company.

The Ajax-Grieb Rubber Co. (Trenton, New Jersey) have opened a branch in Philadelphia, at No. 316 North Broad street, in charge of Joseph Keir, and one in Kansas City, Missouri, at No. 1422 Grand avenue, under the management of Enoch Graf.

The Palmer-Hawkins Rubber Tire Co. (Akron, Ohio), the incorporation of which has been noted in these columns, has for its object primarily the manufacture of the new tire invented by Mr. H. A. Palmer, illustrated in THE INDIA RUBBER WORLD September 1, 1908, (page 411). Mr. Palmer is president and general manager, and A. W. Hawkins secretary and treasurer.

The Calmon Asbestos and Rubber Works of America, the incorporation of which has been recorded already in THE INDIA RUBBER WORLD, and of which Mr. Edward H. Garcin is president, have established offices on the second floor of Nos. 100-102 Reade street, New York.

"Continental" tires were the equipment on the Fiat Cyclone, which lowered the world's record for a circular track, making one mile in 51 seconds, flat, at St. Paul, on September 5.

PERSONAL MENTION.

MR. WILLIAM W. HANDLEY, of the United States consular service, sailed from New York on September 19 to succeed Mr. James A. Smith, for some time past consul-general to the Congo Free State, with headquarters at Boma, who has been transferred to a larger post. As a Belgian colony the Congo Free State will doubtless have another designation in future, but the American consular post in that territory will continue to be maintained.

Mr. Benjamin H. Ridgely, United States consul-general for some time past at Barcelona, Spain, has been promoted to be consul-general at Mexico City. Mr. Ridgley has been in this service since 1885, successively at Geneva, Nantes, and Malaga, before reaching Barcelona, and became eventually one of the most experienced and competent members of the service. It is interesting to notice that the first word from him in his new post, in the *Daily Consular and Trade Reports*, relates to rubber conditions in Mexico.

Major J. Orton Kerbey, who attended the Brazilian national exhibition at Rio as a representative of the International Bureau of American Republics, was a visitor to the offices of THE INDIA RUBBER WORLD, as this issue was going to press, on his return to Washington. He visited Pará and Manàos on his way to Rio, renewing his acquaintances on the Amazon formed during the period that he held the post of United States consul at Pará.

THE SEA ISLAND COTTON CROP.

IT appears that the yield of Sea Island cotton for the season 1907-08, though smaller than the average, exceeded by nearly 50 per cent. the crop of 1906-07. Messrs. John Malloch & Co., Savannah, Georgia, estimate as follows:

	1902-03.	1903-04.	1904-05.	1905-06.	1906-07.	1907-08.
Bales	105,955	76,414	102,191	123,789	58,932	85,024

Reports on the new crop (1908-09) indicate an early harvest and a fair sized crop. So far as indicated, the grade of this crop is excellent. Malloch's quotations September 26 were: Georgias—Extra fine 15 cents; choice 17; extra choice 17½; fancy 19½. Floridas—Choice 17; extra choice 17½; fancy 20; fancy east 20@21.

NEW RUBBER GOODS.

"KANTCHOKE" SEAMLESS NIPPLE.

THE shape of the seamless "Kantchoke" nipple is such that when mounted on a nursing bottle it will not collapse, and it therefore carries with it all the strong points of the so-called non-collapsible nipples on the market, without the objectionable feature of a physical construction on the inside or the valve arrangement, either of which affords good lodging

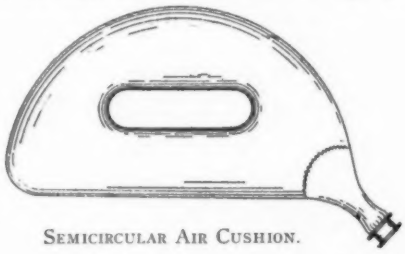
"KANTCHOKE" SEAMLESS NIPPLE.

place for disease germs. Being perfectly smooth on the inside, the "Kantchoke" is necessarily more cleanly and more sanitary. The nipple clings to the neck of the bottle in such manner that there is no danger of its pulling off while in use. It is made from a high grade of non-blooming stock, in three colors—white, black, and maroon. It has met with much favor wherever introduced. [The Faultless Rubber Co., Ashland, Ohio.]

SEMICIRCULAR AIR CUSHION.

THE right to manufacture a specially formed cushion of this description has been acquired by Metzler & Co., of Munich, Bavaria, under the German registered design patent No. 335,240. The peculiar form, and the novel arrangement of the aperture, insures the secure and quiet position of arm, leg or foot after operations. Attempts to devise a suitable support for the above named limbs, and especially, after operations, for the female breast, are as old as surgery itself. Hitherto it has been neces-

sary to remain content with the familiar round and square air cushions, which, however, as supports after an operation are apt to prove directly injurious, for the round cushions, if only slightly inflated—and they must not be blown up hard—because in such case the support would not be soft enough—yield to the



Semicircular Air Cushion.

least movement of the part supported and thereby make quiet, safe and painless repose impossible. This disadvantage is claimed to be remedied by the new cushion. The parts in question are placed in the elongated oval aperture of the cushion and there find, not only an absolutely safe and secure rest, but also an agreeably soft support, that cannot be displaced.

THE NEW "MELBA" HEEL.

If the young women of to-day are bound to wear shoes with six-story heels, it is incumbent upon the rubber manufacturers to make rubbers to fit the heels. Evidently that is the idea the

The New "Melba" Rubber.

Wales-Goodyear company take of the matter, because their new "Melba" shoe, recently put on the market, has probably the highest heel yet. It is higher than the Cuban heel and has a narrower toe than the Cuban last. The Wales-Goodyear company are still making large quantities of the Cuban heel, which is by no means displaced by the new "Melba" last, but the Cuban heel is not quite high enough for the extreme height of heel that is being affected now-a-days; hence the addition of the "Melba" last.

"DAISY" SINK STOPPER.

This is a recently patented article which has been very favorably received in the retail trade. It can be placed over the sieve or screen in a sink and close the perforations so that the sink

"Daisy" Sink Stopper.

can be fitted with water for any household purpose. They are all rubber—no metal—with very thin edges. They are boxed by the dozen and retail at 15 to 25 cents. [Elkhart Rubber Works, Elkhart, Indiana.]

This is an age when comfort is at a premium. Rubber tires mean comfort. The commercial truck makers cannot get tires too good, and they are willing to put down the price for what they want. The automobile builders ask no questions as to prices, but they want quality. The rubber tire makers have earned the prosperity they are enjoying, and their industry is one which must grow and prosper with increasing desire for luxury, to say nothing of necessity.—*The Hub (New York)*.

E. T. Trotter & Co. (Brooklyn, New York) are sending to their friends in the trade an attractive booklet of "Views of America," with incidental advertising of their business in insulating materials for electric wires and cables; also, rubber substitutes. [7½" x 5". 24 pages.]

Textile Rubber Co., September 16, 1908, under the laws of New Jersey; capital authorized, $50,000. Incorporators: Alfred W. Ireland, No. 1580 Amsterdam avenue, New York; Frank E. Sincerer, No. 241 Macon street, Brooklyn, N. Y.; Ida Thatcher, East Orange, N. J.

The Mitzel Rubber Co. (Carrollton, Ohio), have been discharged from bankruptcy, their indebtedness having been cared for by an issue of bonds for $54,000.

Review of the Crude Rubber Market.

THE present New York market shows a considerable advance for spot lots for nearby delivery for October, prices ranging from $1.02 to $1.07. The English market is firm, with an upward tendency, and that of Manàos strong and advancing. This appears to be a legitimate advance, based on supply and demand, there being practically no rubber in first hands in New York to-day. An active request continues from tire manufacturers, and every indication points to an upward market. Africans are hardly in sympathy with the general strength, though the last Antwerp sale advanced about 3½ cents a pound.

Arrivals at Pará during September, up to and including Monday, the 28th, were: Islands, 785 tons; Upriver, 1090; Caucho, 220; total, 2095 tons. Compared with former crop years the Pará receipts since July 1 have been as follows:

		1905.	1906.	1907.	1908.
July	*tons*	1450	1840	1370	1300
August	"	1300	1690	1500	1890
September	"	2200	2070	2410	2095
Total		4950	5600	5280	5285

[Average for first three months 10 years, 4570 tons.]

Following are the quotations of New York for Pará grades one year ago, one month ago, and September 29—the current date:

Para.	Oct. 1, '07.	Sept. 1, '08.	Sept. 29.
Islands, fine, new	99@100	89@ 90	94@ 95
Islands, fine, old	none here	none here	none here
Upriver, fine, new	106@107	95@ 96	102@103
Upriver, fine, old	110@112	98@100	106@107
Island, coarse, new	59@ 60	43@ 44	46@ 47
Islands, coarse, old	none here	none here	none here
Upriver, coarse, new	88@ 89	68@ 69	72@ 73
Upriver, coarse, old	none here	69@ 70	74@ 75
Cametà, coarse	.....	51@ 52	52@ 53
Caucho (Peruvian), sheet	69@ 70	50@ 51	53@ 54
Caucho (Peruvian), ball	85@ 86	61@ 62	63@ 64
Ceylon (plantation), fine sheet	129@130	103@104	105@106
African.			
Sierra Leone, 1st quality	82@83	Lopori ball, prime	82@83

Massai, red	82@83	Lopori strip, prime	68@70
Benguella	45@46	Madagascar, pinky	67@68
Accra flake	18@19	Ikelemba	none here
Cameroon ball	50@51	Soudan niggers	58@59

CENTRALS.

Esmerelda sausage	61@62	Mexican, scrap	58@59
Guayaquil, strip	46@47	Mexican, slab	42@43
Nicaragua, scrap	59@60	Mangabeira, sheet	43@44
Panama	46@47	Guayule	29@30

EAST INDIAN.

Assam	75@76	Borneo	27@34

Late Pará cables quote:

	Per Kilo.		Per Kilo.
Islands, fine	4$600	Upriver, fine	5$450
Islands, coarse	2000	Upriver, coarse	3$450
		Exchange	15 7/32d.

Latest Manàos advices:

Upriver, fine	5$600	Exchange	15 3/16d.
Upriver, coarse	3$600		

NEW YORK RUBBER PRICES FOR AUGUST (NEW RUBBER).

	1908.	1907.	1906.
Upriver, fine	.89@.96	1.08@1.15	1.22@1.24
Upriver, coarse	.65@.69	.89@.92	.90@.92
Islands, fine	.83@.90	1.04@1.09	1.18@1.20
Islands, coarse	.43@.46	.60@.62	.65@.67
Cametá	.51@.53	.66@.69	.68@.70

Statistics of Para Rubber (Excluding Caucho).

NEW YORK.

	Fine and Medium.	Coarse.	Total 1908.	Total 1907.	Total 1906.
Stocks, July 31.....*tons*	198	88 =	286	200	147
Arrivals, August	520	296 =	816	487	723
Aggregating	718	384 =	1102	777	870
Deliveries, August.....	632	341 =	973	240	777
Stocks, August 31.....	86	43 =	129	240	93

	PARA.			ENGLAND.		
	1908.	1907.	1906.	1908.	1907.	1906.
Stocks, July 31.....*tons*	250	165	376	200	675	790
Arrivals, August	1490	1380	1565	1150	450	460
Aggregating	1740	1545	1941	1350	1125	1250
Deliveries, August	1435	1255	1491	975	500	550
Stocks, August 31.....	305	290	450	375	625	700

	1908.	1907.	1906.
World's visible supply, August 31..... *tons*	1655	1792	1876
Pará receipts, July 1 to August 31.....	2570	2470	2865
Pará receipts of Caucho, same dates.....	600	460	485
Afloat from Pará to United States, Aug. 31	438	124	218
Afloat from Pará to Europe, August 31....	417	513	415

London

SEPTEMBER 4.—Plantation kinds have been more inquired for than during the previous fortnight. At to-day's auctions there was a fairly good demand for most plantation sorts at about ½ penny [=1 cent] advance on last auction quotations. The highest price, 4*s.* 7*d.* [=$1.11½] was realized for very fine pale crepe from Malaya. Gikiyanakande estate (Ceylon) very fine pale worm fetched 4*s.* 6*d.* [=$1.09½]. Hard fine Pará (from Brazil) sold as high as 4*s.* 0¾*d.* [=98⅓ cents]. One year ago the highest quotation for plantation was 5*s.* 7¾*d.* [=$1.37⅓] and for Brazilian Pará 4*s.* 6½*d.* [=$1.10½]. Decline in plantation during the year, 19 per cent.; decline in Pará, about 10 per cent.

Rubber Receipts at Manaos.

DURING July and two months of the crop season for three years [courtesy of Messrs. Scholz & Co.]:

From	JULY. 1908.	1907.	1906.	JULY-AUGUST. 1908.	1907.	1906.
Rio Purús-Acre....*tons*	498	443	364	704	708	785
Rio Madeira	299	300	268	591	482	584
Rio Juruá.....	97	90	129	149	122	155
Rio Javary-Iquitos.....	241	269	126	249	248	149
Rio Solimoes.....	39	62	47	50	73	62
Total	1,174	1,164	934	1,743	1,633	1,735
Caucho	280	232	94	423	333	237
Total	1,454	1,396	1,028	2,166	1,966	1,972

New York

In regard to the financial situation Albert B. Beers, broker in crude rubber and commercial paper, No. 68 William street, New York, advises:

"During September the general money market conditions have changed but little from the position of the past three months, and there has continued a fair demand for rubber paper at 4½@5 per cent. for the best names and 5½@6 per cent. for those not so well known. While rates may not change materially for the next month or two, the demand is likely to fall off somewhat, as usual, at this time of year."

Antwerp.

ANTWERP RUBBER STATISTICS FOR AUGUST.

DETAILS.	1908.	1907.	1906.	1905.	1904.
Stocks, July 31..*kilos*	695,551	931,356	531,441	819,559	872,746
Arrivals, in August...	640,712	309,667	578,122	509,389	244,704
Congo sorts.....	522,847	232,522	438,005	375,263	221,665
Other sorts.....	117,865	77,145	140,117	134,126	23,039
Aggregating	1,336,263	1,241,023	1,109,563	1,328,948	1,117,450
Sales in August.....	461,749	500,509	422,696	770,746	514,955
Stocks, August 31....	874,514	740,514	686,867	558,202	602,295
Arrivals since Jan. 1.	3,473,739	3,501,465	3,933,727	3,719,673	3,709,621
Congo sorts	2,953,211	2,986,244	2,998,843	2,911,293	3,069,256
Other sorts	520,528	515,221	934,884	808,380	640,365
Sales since Jan. 1....	3,606,119	3,419,135	3,982,047	3,702,832	3,718,026

Liverpool.

EDMUND SCHLUTER & Co. report [August 31]:

Pará Rubber.—The market during August was moderately active. The outstanding feature has been the scarcity of available supplies of fine rubber, and with the continued demand from the United States, prices have advanced at the close. Prospects at present are in favor of no considerable fluctuations. The arrivals from Brazil at the consuming markets during September are an approximately known and not very large quantity, and the value of Pará rubber in warehouse is therefore likely to be maintained, or again slightly advanced. On the other hand, the actual arrivals in Brazil this month and next may make themselves felt and expressed during the second half of the month in an easy tendency for the more distant deliveries.

THE WORLD'S VISIBLE SUPPLY OF PARA, AUGUST 31.

	1908.	1907.	1906.	1905.	1904.	1903.
Tons	3340	2691	2448	1866	1402	1976
Prices hard fine	4/0½	4/7	5/2	5/7	5/-	4/3

IMPORTS FROM PARA AT NEW YORK.

[*The Figures Indicate Weights in Pounds.*]

SEPTEMBER 8.—By the steamer *Maranhense*, from Manàos and Pará:

IMPORTERS.	Fine.	Medium.	Coarse.	Caucho.	TOTAL.
General Rubber Co.....	101,500	18,800	142,100	.....=	262,400
Poel & Arnold	44,100	16,600	98,000	28,400=	187,100
New York Commercial Co.	48,300	8,900	45,500	30,400=	133,100
Hagemeyer & Brunn	54,000	.....	71,300	.....=	125,300
A. T. Morse & Co.....	14,300	4,600	63,200	.....=	82,100
C. P. dos Santos.....	14,700	5,000	47,000	4,300=	71,000
Edmund Reeks & Co.....	17,100	.....	52,200	.....=	69,300
TOTAL	294,000	53,900	519,300	63,100=	930,300

SEPTEMBER 22.—By the steamer *Dominic*, from Manàos and Pará:

General Rubber Co.....	185,500	39,300	163,600	5,900=	394,300
A. T. Morse & Co.....	159,700	66,200	43,600	3,300=	272,800
New York Commercial Co.	97,700	18,000	23,300	29,300=	168,300
Poel & Arnold Co.....	117,400	12,800	22,500	10,500=	163,200
Hagemeyer & Brunn	68,200	3,600	59,400	.....=	131,200
C. P. dos Santos.....	45,400	3,500	31,500	.....=	80,400
Edmund Reeks & Co.....	7,100	1,400	23,100	.....=	31,600
TOTAL	681,000	144,800	367,000	49,000=	1,241,800

PARA RUBBER VIA EUROPE.

		POUNDS.
AUG. 26.—By the *President Grant*=Hamburg:		
New York Commercial Co. (Fine)	13,000	
W. L. Gough Co., (Fine).....	10,000	23,000
AUG. 27.—By the *Carmania*=Liverpool:		
General Rubber Co. (Fine).....	45,000	
New York Commercial Co. (Fine)	27,000	
A. T. Morse & Co. (Fine).....	19,000	
Poel & Arnold (Coarse).....	11,500	102,500
AUG. 28.—By the *Mauretania*=Liverpool:		
New York Commercial Co. (Fine)	65,000	
General Rubber Co. (Fine)....	21,000	
C. P. dos Santos (Coarse).....	17,000	
Robinson & Co. (Fine).....	4,500	107,500
AUG. 29.—By the *Baltic*=Liverpool:		
A. T. Morse & Co. (Caucho).....		65,000
SEPT. 1.—By the *Maracaibo*=La Guayra:		
General Export and Commercial Co. (Fine)	33,500	
General Export and Commercial Co. (Coarse)	11,000	44,500

RUBBER FLUX

No. 17. Particularly adapted to softening material for tubing machine. Almost universally used for waterproofing wire.

No. 48. For fluxing pigments in compounding. A valuable adjunct to the manufacture of moulded goods as it DOES NOT BLOW UNDER CURE.

WRITE FOR PRICES.

Massachusetts Chemical Co., Walpole, Mass.

See "FACTORIES"—WALPOLE RUBBER WORKS. WALPOLE VARNISH WORKS. ELECTRIC INSULATION LABORATORY

WE ARE OFFERING SCRAP RUBBER AT LOW PRICES

LARGEST DEALERS IN OLD RUBBER IN THE WORLD.

Theodore Hofeller & Company

BUFFALO, N. Y.

WE SOLICIT YOUR INQUIRIES

LARGEST DEALERS IN OLD RUBBER IN THE WORLD.

INSULATED WIRE MANUFACTURERS

OUR FINISHING WAXES STAND "ALL TESTS." THEY ARE ABSOLUTELY THE ONLY WAXES OFFERED FOR SALE THAT DO

AMERICAN WAX COMPANY

EUROPEAN AND DOMESTIC INQUIRIES SOLICITED

BOSTON, MASSACHUSETTS, U. S. A.

HYDRO-CARBON

That's acknowledged Best—because it Tests 99+% Purity. Amalgamates perfectly in vulcanizing process. Retains its flexibility at zero weather. Have you seen samples?

AMERICAN WAX CO. Boston, Mass.

Sept. 4.—By the *Pennsylvania*=Hamburg:
New York Commercial Co. (Fine)..... 19,000

Sept. 4.—By the *Cedric*=Liverpool:
Poel & Arnold (Fine)..... 17,000
Poel & Arnold (Coarse)..... 14,000 31,000

Sept. 5.—By the *Lucania*=Liverpool:
General Rubber Co. (Fine)..... 30,000
New York Commercial Co. (Caucho) 11,000 41,000

Sept. 5.—By the *Umbria*=Liverpool:
Poel & Arnold (Fine)..... 110,000
Poel & Arnold (Coarse)..... 5,500
New York Commercial Co. (Fine) 66,000 181,500

Sept. 10.—By the *Caronia*=Liverpool:
Poel & Arnold (Fine)..... 22,500

Sept. 11.—By the *Advance*=Mollendo:
W. R. Grace & Co. (Caucho)..... 22,500

Sept. 11.—By the *Lusitania*=Liverpool:
New York Commercial Co. Fine)..... 11,500

Sept. 12.—By the *Victoria*=Hamburg:
New York Commercial Co. (Fine).... 11,500

Sept. 16.—By the *Oceanic*=Havre:
A. T. Morse & Co. (Fine)..... 27,000

Sept. 17.—By the *Etruria*=Liverpool:
Poel & Arnold (Fine)..... 30,000
New York Commercial Co. (Fine) 11,000
Muller, Schall & Co. (Coarse).. 2,500 43,500

Sept. 18.—By the *Orinoco*=Mollendo:
New York Commercial Co. (Fine)..... 3,500

Sept. 18.—By the *Pretoria*=Hamburg:
Poel & Arnold (Coarse)..... 24,000

OTHER NEW YORK ARRIVALS.

CENTRALS.

		Pounds.
Aug. 26.—By the *Joachem*=Colon:		
Hirzel, Feltmann & Co.....	6,000	
A. M. Capen's Sons.....	5,000	
G. Amsinck & Co.....	3,500	
Mecke & Co.....	3,500	
A. Santos & Co.....	1,500	19,500
Aug. 28.—By the *Gayaz*=Pernambuco:		
A. D. Hitch & Co.....		5,000
Aug. 29.—By the *Seguranca*=Vera Cruz:		
Kreamer & Forster	5,000	
American Trading Co.....	1,000	6,000
Aug. 31.—By the *Esperanza*=Colon:		
L. Johnson & Co.....	7,000	
A. Santos & Co.....	4,000	
Hirzel, Feltmann Co.....	3,500	
G. Amsinck & Co.....	3,000	
Isaac Brandon & Bros.....	2,000	
Demarest Bros. Co.....	2,000	
West Coast Rubber Co.....	1,500	
A. N. Rotholz	1,000	24,000
Sept. 2.—By *El Dia*=Galveston:		
Continental-Mexican Rubber Co.....		*27,500
Sept. 13.—By the *Magdelana*=Columbia:		
G. Amsinck & Co.....	3,000	
American Trading Co.....	1,500	4,500
Sept. 4.—By the *Cienfuegos*=Tampico:		
New York Commercial Co.....	*55,000	
Edward Maurer	*35,000	
Poel & Arnold.....	*7,000	
American Trading Co.....	*1,500	*98,500
Sept. 5.—By the *Colon*=Colon:		
New York Commercial Co.....	5,500	
Simons, Elias & Abdad.....	2,000	7,500
Sept. 5.—By the *Merida*=Frontera:		
General Export & Commercial Co.	2,000	
Harburger & Stack	1,000	
H. Marquardt & Co.....	1,000	
E. Steiger & Co.....	1,000	5,000
Sept. 5.—By the *Bayamo*=Tampico:		
Edward Maurer	*70,000	
Poel & Arnold	*34,000	*104,000

GUAYULE

WHEN PROPERLY CURED AND MIXED WITH OTHER COMPOUNDS

IS THE CHEAPEST RUBBER ON THE MARKET

There is As Much Difference Between the Various Brands of Guayule as Between Fine Para and Shoddy

Guayule made from old, sun exposed shrub is **dead, dirty and sticky,** and no amount of washing will make it clean, while rubber made from freshly cut, selected shrub, has **life, low percentage of resin and is practically clean.**

OUR **PARRA** BRAND

has been on the market for several years and is known to be the best Guayule made as to life, strength, purity and low percentage of resin.

There is a large demand for a specially prepared Guayule, dry and ready for use, which we have met in

OUR **DURANGO** BRAND

As this rubber is made exclusively from our high grade "Parra" Guayule, uniformity and absolute purity is guaranteed. No mixing in of cheap compounds to bring down the price. Durango rubber is nothing but Parra brand pure Guayule prepared so that anybody can use it.

CONTRACTS MADE FOR REGULAR MONTHLY OR WEEKLY DELIVERIES

For Samples and Quotations apply to

ED. MAURER

97 Water St., NEW YORK

Sole Representative of the MADERO interests in Mexico, largest owners of Guayule

SEPT. 8.—By the *Voltaire*=Bahia:

Poel & Arnold	34,000	
J. H. Rossback & Bros.	15,000	49,000

SEPT. 8.—By the *Crown Prince*=Bahia:

Poel & Arnold	33,000	
J. H. Rossback & Bros.	16,000	
A. Hirsch & Co.	6,000	55,000

SEPT. 8.—By *El Alba*=Galveston:

Continental-Mexican Rubber Co.	*65,000	
Edward Maurer	*22,500	*87,500

SEPT. 9.—By the *Prins August*=Colon:

G. Amsinck & Co.	5,000	
A. N. Rotholz	1,000	
H. Marquardt & Co.	1,000	7,000

SEPT. 10.—By *El Norte*=Galveston:

Continental-Mexican Rubber Co.		*27,500

SEPT. 11.—By the *Advance*=Colon:

New York Commercial Co.	10,000	
G. Amsinck & Co.	3,000	
Eggers & Heinlein	2,500	
Horace Coleman	1,500	
Jose Julia & Co.	2,000	
Bartling & De Leon	1,000	20,000

SEPT. 12.—By the *Morro Castle*=Frontera:

Harburger & Stack	2,000	
H. Marquardt & Co.	2,000	
General Export & Commercial Co.	2,000	
J. W. Wilson & Co.	1,000	7,000

SEPT. 14.—By *El Cid*=Galveston:

Continental-Mexican Rubber Co.		*27,500

SEPT. 14.—By the *Zeeland*=Antwerp:

New York Commercial Co.		*55,000

SEPT. 18.—By the *Allianca*=Colon:

Fidangue Bros. Co.	3,000	
G. Amsinck & Co.	2,000	
Hirzel, Feltmann Co.	2,000	
Piza, Nephews & Co.	1,500	
Eggers & Heinlein		1,500
Kunhardt & Co.	1,000	

SEPT. 18.—By the *Afghan Prince*=Bahia:

Poel & Arnold		45,000

SEPT. 21.—By the *Finance*=Colon:

G. Amsinck & Co.	7,500	
Roldan & Van Sickle	2,500	
Hirzel, Feltmann & Co.	2,500	
Suzarte & Whitney	2,000	
H. Marquardt & Co.	1,500	
Mexican Products Co.	1,000	
Demarest Bros. & Co.	1,000	
A. M. Capen's Sons	1,000	
A. Rosenthal Sons	1,000	20,000

SEPT. 22.—By *El Dia*=Galveston:

Continental-Mexican Rubber Co.		*55,000

SEPT. 22.—By the *Tennyson*=Bahia:

Poel & Arnold	45,000	
A. Hirsch & Co.	9,000	54,000

*This sign, in connection with imports of Centrals, denotes Guayule rubber.

AFRICANS.

	POUNDS.	
AUG. 26.—By the *President Grant*=Hamburg:		
General Rubber Co.	16,500	
Muller, Schall Co.	18,500	
George A. Alden & Co.	4,500	39,500
AUG. 28.—By the *Baltic*=Liverpool:		
General Rubber Co.		112,000
SEPT. 1.—By the *Vaderland*=Antwerp:		
A. T. Morse & Co.	67,000	
W. L. Gough Co.	11,000	78,000
SEPT. 4.—By the *Pennsylvania*=Hamburg:		
W. L. Gough Co.	11,500	
Robinson & Co.	2,500	
Rubber Trading Co.	4,500	
George A. Alden & Co.	7,000	25,500
SEPT. 5.—By the *Lucania*=Liverpool:		
General Rubber Co.	11,000	
George A. Alden & Co.	8,500	
Livesey & Co.	2,500	22,000
SEPT. 5.—By the *Umbria*=Liverpool:		
General Rubber Co.	34,000	
A. T. Morse & Co.	10,000	
Muller, Schall & Co.	3,500	47,500
SEPT. 8.—By the *Finland*=Antwerp:		
George A. Alden & Co.	100,000	
Poel & Arnold	60,000	
A. T. Morse & Co.	50,000	
W. L. Gough Co.	20,000	
Joseph Cantor	25,000	
Robinson & Co.	3,500	258,500
SEPT. 10.—By the *Caronia*=Liverpool:		
Poel & Arnold	11,000	
Muller, Schall & Co.	9,000	
General Rubber Co.	5,500	
Joseph Cantor	5,500	31,000
SEPT. 11.—By the *Patricia*=Hamburg:		
A. T. Morse & Co.	33,500	
General Rubber Co.	30,000	
Rubber Trading Co.	6,500	
Poel & Arnold	2,500	72,500
SEPT. 12.—By the *St. Louis*=Havre:		
General Rubber Co.		25,000
SEPT. 14.—By the *Dunally*=Lisbon:		
A. T. Morse & Co.		11,500
SEPT. 14.—By the *Louisiana*=Bordeaux:		
Livesey & Co.	9,000	
W. L. Gough Co.	3,500	12,500
SEPT. 16.—By the *Oceanic*=Havre:		
General Rubber Co.		16,500
SEPT. 17.—By the *Etruria*=Liverpool:		
Poel & Arnold	3,500	
A. T. Morse & Co.	5,500	9,000
SEPT. 17.—By the *Hudson*=Havre:		
Poel & Arnold	33,500	
A. T. Morse & Co.	22,500	
C. P. dos Santos	5,000	
George A. Alden & Co.	4,500	65,500
SEPT. 18.—By the *Pretoria*=Hamburg:		
A. T. Morse & Co.	22,500	
George A. Alden & Co.	11,500	
Muller, Schall & Co.	11,500	45,500
SEPT. 19.—By the *Deutschland*=Hamburg:		
W. L. Gough Co.		10,000
SEPT. 22.—By the *Minneapolis*=London:		
W. L. Gough Co.		4,500

EAST INDIAN.

	POUNDS.	
AUG. 26.—By the *President Grant*=Hamburg:		
Heabler & Co.		6,500
AUG. 29.—By the *Katuna*=Colombo:		
A. T. Morse & Co.	*11,500	
Poel & Arnold	*2,000	*13,500
AUG. 31.—By the *Verona*=Singapore:		
George A. Alden & Co.		15,000
SEPT. 1.—By the *Minnetonka*=London:		
Rubber Trading Co.	5,000	
Robinson & Co.	3,500	8,500
SEPT. 3.—By the *Oceana*=Singapore:		
Poel & Arnold	20,000	
George A. Alden & Co.	11,000	
Heabler & Co.	10,000	41,000
SEPT. 8.—By the *New York*=London:		
Poel & Arnold	*11,500	
A. T. Morse & Co.	*10,000	*21,500
SEPT. 8.—By the *Finland*=Antwerp:		
Poel & Arnold		*4,000
SEPT. 9.—By the *Mesaba*=London:		
A. T. Morse & Co.	*15,000	
General Rubber Co.	*10,000	*25,000
SEPT. 12.—By the *St. Louis*=London:		
Poel & Arnold		*11,000
SEPT. 15.—By the *Minnehaha*=London:		
General Rubber Co.	7,000	
Robinson & Co.	7,000	14,000
SEPT. 16.—By the *Oceanic*=London:		
Poel & Arnold	*4,500	
SEPT. 17.—By the *Kaloma*=Colombo:		
A. T. Morse & Co.		*22,500
SEPT. 19.—By the *St. George*=Singapore:		
Otto Isenstein & Co.		9,000
SEPT. 21.—By the *Philadelphia*=London:		
A. T. Morse & Co.	*9,000	
Poel & Arnold	*5,000	*14,000
SEPT. 22.—By the *Minneapolis*=London:		
A. T. Morse & Co.	*13,500	
General Rubber Co.	*7,000	
General Rubber Co.	9,000	29,500

*Denotes plantation rubber.

GUTTA-JELUTONG.

AUG. 31.—By the *Verona*=Singapore:		
Heabler & Co.	155,000	
M. N. Joachimson	110,000	
Poel & Arnold	55,000	
W. L. Gough Co.	55,000	375,000
SEPT. 1.—By the *Minnetonka*=London:		
Heabler & Co.		20,000
SEPT. 3.—By the *Oceana*=Singapore:		
Poel & Arnold	220,000	
Heabler & Co.	175,000	
L. C. Hopkins Co.	110,000	
George A. Alden & Co.	22,000	527,000
SEPT. 4.—By the *Cedric*=Liverpool:		
W. L. Gough Co.	130,000	
George A. Alden & Co.	55,000	185,000
SEPT. 17.—By the *St. George*=Singapore:		
Poel & Arnold	220,000	
Winter & Smillie	70,000	
L. C. Hopkins Co.	100,000	390,000

GUTTA-PERCHA.

	POUNDS.	
SEPT. 1.—By the *Minnetonka*=London:		
George A. Alden & Co.	22,500	
W. L. Gough Co.	22,500	45,000
SEPT. 18.—By the *Pretoria*=Hamburg:		
Robert Soltau & Co.		8,000

BALATA.

AUG. 26.—By the *Guiana*=Demerara:		
George A. Alden & Co.		10,000
SEPT. 1.—By the *Maracaibo*=La Guayra:		
Kunhardt & Co.	28,000	
G. Amsinck & Co.	22,500	
General Export & Commercial Co.	23,000	
American Trading Co.	3,500	77,000
SEPT. 5.—By the *Prins Willem*=Paramaibo:		
Frame & Co.	6,500	
George A. Alden & Co.	2,500	
Gillespie Bros.	2,500	11,500
SEPT. 8.—By the *Sarawaca*=Demerara:		
Middleton & Co.	16,000	
George A. Alden & Co.	11,500	27,500
SEPT. 8.—By the *Korona*=Demerara:		
George A. Alden & Co.	12,500	
Middleton & Co.	10,000	22,500

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—AUGUST.

Imports:	Pounds.	Value.
India-rubber	3,578,322	$2,102,970
Balata	80,045	36,094
Gutta-percha	9,286	6,135
Gutta-jelutong (Pontianak)	1,300,009	33,678
Total	4,967,662	$2,178,877
Exports:		
India-rubber	81,914	$54,438
Reclaimed rubber	2,262	260
Rubber scrap imported	467,956	34,248

BOSTON ARRIVALS.

	POUNDS.	
AUG. 10.—By the *Belgravia*=Hamburg:		
George A. Alden & Co., Africans	5,500	
Poel & Arnold, Africans	4,500	
W. L. Gough Co., Africans	3,426	13,426
AUG. 20.—By the *Saxonia*=Liverpool:		
Poel & Arnold, Africans		7,000
AUG. 18.—By the *Ghazal*=Singapore:		
W. L. Gough Co., Gutta-Jelutong		56,835
Total		77,261

PARA EXPORTS OF INDIA-RUBBER, AUGUST, 1908 (IN KILOGRAMS).

	NEW YORK.					EUROPE.					
EXPORTERS.	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	TOTAL.
Schrader, Gruner & Co.	22,950	8,330	80,520	14,190	125,990	31,450	3,910	2,970	23,492	61,822	187,812
Gordon & Co.	66,130	9,860	98,010	....	174,000	26,860	6,800	....	330	33,990	207,990
J. Marques & Co.	16,490	2,720	54,120	....	73,330	28,560	3,570	5,280	....	37,410	110,740
Adelbert H. Alden	6,800	3,230	35,640	4,620	50,290	28,220	3,570	10,560	13,200	55,550	105,840
E. Pinto Alves & Co.	21,420	....	46,530	....	67,950	29,750	....	7,920	....	37,670	105,620
Pires, Teixeira & Co.	12,750	....	17,490	....	30,240	13,600	....	9,900	....	23,500	53,740
Scholz, Hartje & Co.	170	170	38,280	....	38,620	....	....	11,880	....	11,880	50,500
De Lagotelleri & Co.	2,380	1,700	43,890	....	47,970	....	....	....	....	....	47,970
R. Suarez & Co.	....	....	....	....	....	12,610	....	4,301	2,639	19,500	19,550
R. O. Ahlens & Co.	....	....	....	....	....	10,436	....	....	....	10,436	10,436
Sundries	....	....	....	....	....	100	....	....	....	100	100
Itacoatiara, direct	....	....	....	....	....	3,242	....	2,132	1,740	7,114	7,114
Manáos, direct	115,470	32,182	39,491	16,225	203,368	313,446	45,881	17,371	73,243	449,941	653,309
Iquitos, direct	....	....	....	....	....	4,583	388	2,938	246,774	254,683	254,683
Total, August	264,560	58,192	453,971	35,035	811,758	502,857	64,119	75,252	361,418	1,003,646	1,815,404
Total, July	303,465	77,885	343,954	109,439	834,743	337,645	33,166	107,931	149,003	627,745	1,462,488

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Rubber Scrap Prices.

LATE New York quotations—prices paid by consumers for carload lots, per pound—show an advance, as compared with last month:

Old rubber boots and shoes—domestic	8¾@ 8½
Old rubber boots and shoes—foreign	8 @ 8⅛
Pneumatic bicycle tires	6 @ 6½
Automobile tires	6 @ 6½
Solid rubber wagon and carriage tires	7 @ 8
White trimmed rubber	10½@11
Heavy black rubber	4½@ 4¾
Air brake hose	3¾@ 4
Garden hose	2 @ 2¼
Fire and large hose	2¾@ 1⅝
Matting	1½@ 1⅝

OBITUARY.

BENJAMIN F. SUTTON died on September 23 at his summer home, "Echo Park," at Lake Spofford, New Hampshire. For some time he had been so much of an invalid as to fill his friends with apprehension, but the end came suddenly, following a third attack of paralysis. Mr. Sutton was born about 63 years ago at Lockport, New York. At an early age he became interested in the rubber manufacture through a connection with the Perkins Manufacturing Co., which later was merged with the Duval Rubber Co. (Providence, Rhode Island). He was of inventive turn of mind and developed an atomizer valve which was worked at a profit by the two companies named.

BENJAMIN FRANKLIN SUTTON.

About 1885 Mr. Sutton became connected with a New York firm in the rubber druggists' and stationers' sundries business, which then for six years had consisted of two partners—Russell Parker and James H. Stearns. The firm then became Parker, Stearns & Sutton, which name was continued after the business was incorporated under the laws of New York state in December, 1892, with $450,000 capital. Mr. Sutton was the inventor of the continuous flow syringe and of a number of other specialties manufactured so successfully by the company referred to. The style of the corporation was changed December 8, 1905, to Parker, Stearns & Co., owing to Mr. Sutton's wish to retire from business, and he sold his interest in the firm.

Mr. Sutton was prominent in the social life of Brooklyn for years. He was a member of the Union League Club and president of its bowling association. He was an enthusiastic yachtsman, owning the schooner yacht *Loyal*, and holding for a long time the position of commodore of the Brooklyn Yacht Club, in addition to being a member of several other organizations devoted to this sport. Mr. Sutton finally made his home in the state of New Hampshire all the year—in winter in a beautiful home which he built at Keene, and in summer at "Echo Park," already mentioned. At Lake Spofford he had as neighbors his two partners, Messrs. Parker and Stearns, both of whom owned beautiful homes there.

Mr. Sutton, in his prime, was a man of striking appearance, an athlete, and an amateur artist whose work attracted attention. The interment was from his late home, on September 25. A widow and daughter survive.

IN *The India-Rubber Journal* occurs an extended notice of the marriage of Mr. Baldwin Drummond and Mrs. Marshall Field, in London, on September 3. Mr. Drummond, who is a grandson of Lord Muncaster, is one of the joint managers of the British Murac Syndicate, Limited, which has a direct relation to the rubber industry. Mr. Drummond is related to the Duke of Westminster, who is described as also a large shareholder in the murac syndicate. The bride was the widow of the son of the late Marshall Field, the wealthy Chicago merchant.

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